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JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 23 1941

AMOEBIC DYSENTERY AND ITS EFFECTIVE TREATMENT*

A CRITICAL STUDY OF 535 CASES

BY

Sir PHILIP MANSON-BAHR, C.M.G., D.S.O., M.D., F.R.C.P.

The aim of the present investigation has been to discover the best method of treating intestinal amoebiasis and of eradicating this infection.† 535 cases have been selected for this study out of numerous records of clinical amoebiasis during a period of twenty years. Those only have been included in which *Entamoeba histolytica* or its cysts have been demonstrated by personal observation. No metastatic complications of amoebiasis have been considered unless accompanied by manifestations of active amoebic dysentery.

Of the cases 450 were in men and 85 in women; with the exception of 8 Indian seamen all the patients were Europeans. They were derived from sixty-four countries, though the great majority were from India, Ceylon, West Africa, China, and Malaya; smaller numbers hailed from other parts of Africa, from Egypt to the Cape, including the Canaries, Cape Verde Islands, and Mauritius. In Europe a few were infected in Northern France, Germany, Austria, Greece, South Russia, and Malta. From America cases came mostly from the West Indies and the South American republics. From Australia there was one example, from New South Wales; from England one indigenous infection.

This case occurred in a stevedore in the London docks who had been suffering from supposedly ulcerative colitis. He had never been out of England, but had worked for twenty years on the wharves, where he had probably contracted amoebiasis from association with Indian seamen.

Most cases originated between the second and fourth decades of life, a small proportion (43) between the fifth and sixth, and only 8 above that age. There were 8 under 20 years old, the youngest being 7¾ (although the infection had been acquired five years earlier). Amoebiasis therefore appears to be mostly a disease of adult life: European children are seldom affected. It is usually contracted from contaminated water. Thus 10 in this series were employees of a cable company from St. Vincent (Cape Verde Islands), where the evidence of infection from stored and contaminated water was found to be almost conclusive.

Diagnosis

The following is a summary of the findings:

Diagnosed by *E. histolytica* in scrapings from ulcers in rectum ..	26
Diagnosed by active *E. histolytica* in faeces	222
Diagnosed by *E. histolytica* cysts in faeces (in 17, precystic forms together with cysts)	287

In many cases *E. histolytica* cysts were associated with *Giardia intestinalis, Iodamoeba buetschlii, Endolimax nana, Entamoeba coli*, active and cysts. In no instance were active *E. histolytica* and cysts found simultaneously in blood and mucus stools. It is important to note that in 26 cases diagnosis was rendered certain from scrapings made from amoebic ulcers in the bowel, whereas no confirmatory evidence had been forthcoming by simultaneous faeces examinations.

Sigmoidoscopy was performed in 258 cases, amoebic ulcers and other characteristic lesions being demonstrated in 234. In 77 cases active entamoebae were recognized in scrapings; in 24 (9.3%) the mucosa had a normal appearance. Routine sigmoidoscopy has therefore proved its value as a means of securing positive diagnosis. Thus:

An officer aged 27 who had for long been regarded as suffering from ulcerative colitis was seen in June, 1934. The faeces had been examined microscopically on many occasions, with a negative result. Sigmoidoscopy revealed ulcerated mucosa, and in scraping active *E. histolytica* was seen. It transpired that up to 10 years of age he had lived in Mauritius, where he had suffered from mild dysentery, but since then had not been abroad. The latent period of this infection was therefore seventeen years.

Complicating Conditions

Many other complicating infections were recorded, such as: malaria (30 cases), kala-azar, trypanosomiasis, filariasis (*A. perstans* 3, *Loa loa* 1), ankylostomiasis, oxyuriasis, ascariasis, bilharziasis (*S. mansoni* 2), sprue (8), cardiac complications (4), *B. coli* bacilluria (5), liver abscess (6), amoebic infection of the skin (1), syphilis (4), renal calculus (3), fistula in ano, rectal abscess, fibroid phthisis, pneumonia, tuberculous mesenteric glands, etc. Two cases in which the patient was pregnant (seven months and six weeks respectively) were cured by E.B.I. treatment.

Clinical Notes

Amoebic dysentery is usually chronic in nature and erratic in its course. It is particularly benign, and seldom dangerous to life. There was only one death in this series, in a patient who was moribund when the diagnosis was made:

Though the onset of the fatal illness was sudden and death took place within three days, it is probable that the patient had been infected for a considerable period. He was a ship's carpenter who had sailed to the Tropics for many years. At necropsy extensive ulceration and necrosis of the large intestine were found, as well as five liver abscesses.

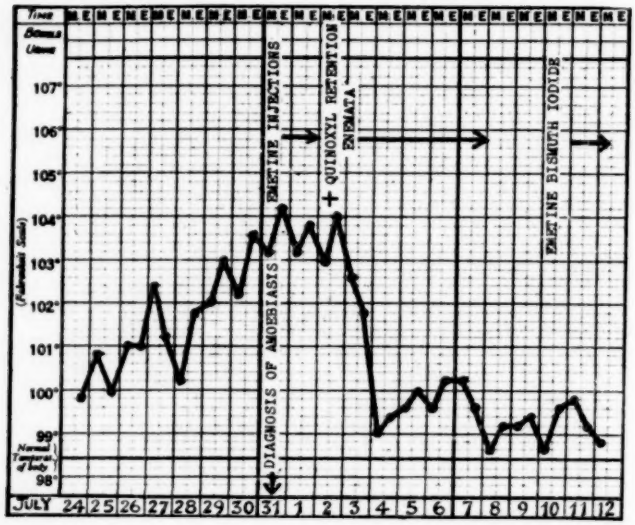
The great majority are apyrexial. Fever usually denotes subacute hepatitis, which accounted for 30 in this series, but occasionally an alarming pyrexia, which may best be termed "amoebic fever," may be noted.

A seaman on his arrival from Sierra Leone (July, 1940) had been ill for sixteen days with high fever, headache, bone pains, and other signs of toxaemia. His general condition suggested typhoid. There were occasional attacks of diarrhoea and meteorism. No amoebae could be demonstrated in the faeces, though sigmoidoscopy revealed extensive ulceration of the rectal mucosa, containing active *E. histolytica*. Response to treatment was almost immediate (see Chart).

* Based on the Lumleian Lectures for 1941.

† The results of treatment are given in a series of tables at the end of this paper.

Classification.—Acute cases with bloody diarrhoea and distressing symptoms are rare. There are records only of 4 in the present series, including the fatal case already recorded. 244 could be classified as subacute, with blood and mucus in the stools, diarrhoea, abdominal pains, and urgent symptoms; but the majority (287) were chronic, with intermittent diarrhoea, the faeces containing *E. histolytica* cysts and precystic forms presenting comparatively



few indefinite physical signs. In 15 the chief complaint was chronic diarrhoea, without passage of either blood or mucus, which supports a suggestion that this type of case might better be termed "amoebic diarrhoea." Included with the chronic cases are those symptomless forms, numbering 15 (2.8%), without suggestive medical history or physical signs, but which harboured *E. histolytica* cysts and which had become symptomless "cyst carriers." Intestinal amoebiasis is compatible with average good health, as is borne out by the following figures. The average duration before treatment was four and a half years. In 24 the disease had already persisted over sixteen years, the extreme being thirty years; only 25 (4.7%) were investigated and treated during the first attack. The periodic supervention of relapses is a striking feature: in the majority it is difficult to keep count of these recrudescences, but the average number in 245 cases worked out at 3.3.

Physical Signs.—Distinctive physical signs may be few. Enlargement of the liver is fairly constant when complicated by hepatitis (76). The caecum and transverse colon were thickened in 128, but pericolonic infiltration of the sigmoid, which is the more obvious, was found in 212. In one there was an elongated palpable tumour, which from its physical characters had been mistaken for carcinoma of the sigmoid. Loss of weight is rarely encountered in amoebiasis, however long-standing, and this was recorded in 61 cases (ranging from 10 to 42 lb.). Two patients suffered from obesity. In only one instance had emaciation been so considerable as to suggest the possibility of carcinoma. Intermittent haemorrhage from the large intestine may occasionally occur. In 4 instances active *E. histolytica* were demonstrated in melaena, thus rendering diagnosis certain. Constipation, alternating with diarrhoea (noted in 4), may be the outstanding feature, not incompatible with a diagnosis of amoebiasis.

Symptoms.—Localized deep abdominal pain and tenderness on palpation over caecum and sigmoid are most frequent (173). On the other hand, tenesmus, which is such a feature of bacillary dysentery, is usually absent, and was noted only in 7 cases; meteorism and flatulency occurred in 45. Vomiting is certainly not a usual feature of amoebiasis, and was recorded in 3 only. It is necessary to emphasize these features, as there appears to be an impression that amoebic dysentery may be ushered in by violent gastro-intestinal disturbances.

Solitary Indurated Amoebic Ulceration of Rectum.—Two instances of remarkable localization of amoebic ulceration have been revealed. Both occurred in ex-soldiers, and the process had taken many years to develop. One had contracted his infection in France in 1916, though urgent symptoms first showed some 21 years later; the second, from India, was of 10 years' standing. These ulcers, palpable by digital rectal examination, were deep and excavated, with hard and craggy margins suggesting malignant growths. From the surface scrapings active *E. histolytica* was recognized. Both cases yielded satisfactorily to anti-amoebic treatment.

Rectal prolapse occurred in 3 cases, 2 of which could be attributed to straining; the prolapse was rectified on appropriate anti-amoebic treatment.

Appendicitis.—Chronic inflammation of the appendix may complicate active amoebiasis. In the present series 29 cases (5.4%) of appendicitis necessitated operation, but in no single instance were amoebae demonstrated in the microscopical sections of this viscus.

Subclinical Cases.—However exhausting the physical examination, there still exists a residuum presenting no outward physical signs beyond the fact that the patient may complain of malaise and fatigability. Sometimes the complexion assumes a muddy colour, the tongue is coated, and the skin may lose its normal elasticity. The true nature would certainly be missed in the absence of a routine microscopical examination of the faeces.

Latency.—The chronicity of amoebiasis is compatible with long periods of quiescence or latency, during which the patient enjoys uninterrupted good health, and may veritably believe that he is cured, when all the while there exists a residual focus of infection in the large intestine which may light up, producing somewhat alarming symptoms. In this series there are records of some 11 cases in which the quiescent period lasted from five to twenty-two years.

Treatment

A large number (259, or 48.5%) had at some previous time undergone emetine injection therapy, either alone or combined with other drugs. The figures are impressive, but they certainly do not support the assumption that hypodermic injections of emetine are a certain cure. In chronic cases it is especially necessary to emphasize this, because it is generally assumed that emetine is so specific for amoebiasis that it will cure any case, however chronic. That hypodermic emetine treatment controls the urgent clinical manifestations there cannot be any reasonable doubt, but it certainly does not, in the majority of instances, eradicate the infection. This is evident from the figures (Table II). There appears to be ample evidence that, so far from finally curing the patient, this practice tends to render the amoebae emetine-fast and final cure thereby much more difficult to attain (Table II).

There were 7 emetine intoxications in the series. Taking into consideration the number of cases and the intensive emetine injection therapy to which some of them had been subjected, this is not a high proportion. Emetine intoxication may declare itself by asthenia, mental depression, low blood pressure, cardiac irregularity, desquamation of the skin, brittleness of the nails, painful muscles (myositis), and, finally, by neuritis. In extreme degrees there is some paresis of the legs with slight foot-drop, cold clammy skin, abolition

of the deep reflexes, and usually a fair degree of paraesthesia. All patients who showed intoxication had been subjected to prolonged courses of emetine injections and had received a total amount ranging from 70 to 130 grains.

Occasionally emetine may attack one particular group of muscles, causing progressive wasting and eventually a state resembling progressive muscular atrophy, as in the following case :

This patient, seen in 1920, appeared to be sensitive to emetine. He had suffered for four years from recurrent dysentery, for which he was treated by emetine injections ; but after a course of 27 grains of emetine bismuth iodide wasting resembling progressive muscular atrophy developed, affecting the trapezius, supraspinatus, infraspinatus, and deltoid muscles. Function was not fully restored till after a period of massage and electric treatment lasting three months.

Emetine Bismuth Iodide (*E.B.I.*).—The outstanding merit of this drug is its effect upon the cysts of *E. histolytica*. The maximum individual dose for an adult is 3 grains, given over a period of ten nights ; but recent experience has shown that a smaller dose—2 grains—is equally effective and causes less physical and mental depression. As is well appreciated, E.B.I. is best given in hard gelatin capsules on an empty stomach about 10 p.m.—3½ hours after the last meal. Luminal is probably the most effective sedative to combat nausea and possible vomiting : 1 grain at 9 p.m. usually suffices, but for refractory cases a better method is 1 grain at 8 p.m. and a further 1/2 grain an hour later. Occasionally allonal, or 10 minims of tinct. opii or nepenthe, is more satisfactory. When in the form of hard tablets coated with stearin, E.B.I. is apt to be passed unabsorbed in the faeces. Therefore to ascertain that it has been properly absorbed becomes an important factor in its administration. In this series 114 cases were treated with E.B.I. in doses totalling from 20 to 40 grains, and 7 (6.1%) relapses were registered. Some proved singularly resistant, and 3 were still uncured after nine separate courses of the drug.

Emetine Periodide (E.P.I.)—Introduced in 1923, this is less toxic than E.B.I. and consequently better tolerated, and can therefore be given in larger amounts. It has been customary to combine it with ox-bile tablets of 5 grains. Of 13 cases treated with E.P.I. in courses totalling 40 to 72 grains (maximum tolerated dose, 6 grains daily), 5 (46%) subsequently relapsed. Though better tolerated than E.B.I., it cannot on this evidence be regarded as being as efficacious.

Auremetine.—This drug, a compound of auramine (an aniline dye) and emetine, has been tried out intermittently since its introduction in 1923. The dose is 3 to 4 grains daily for ten days, given in the same manner as E.B.I. Five cases were so treated ; the toxic effects were considerable, and all subsequently relapsed.

Quinoxyl (Synonyms: yatren, chiniofon, anayodin).—This drug has been employed since 1925. The combination of oxyquinoline-sulphonic acid and iodine, when given in pill form by the mouth, did not prove satisfactory. Rectal retention enemata, 2½% in 200 c.cm., usually preceded by an enema of 2% sodium bicarbonate, are well tolerated and can be retained from four to eight hours. In refractory cases the strength has been doubled to 5% (Table III) without any disagreeable effects. Beyond a slight erythematous rash no signs of intolerance have been observed. The action of this drug on amoebic lesions can be readily observed by periodic sigmoidoscopic examinations. My experience in 35 cases treated by quinoxyl by mouth and rectum led me to believe that it is especially useful in those resistant to E.B.I. ; but in freshly occurring infections it was not so successful. Relapses were subsequently registered in 8 (22.8%).

Combined treatment as introduced by me consists of quinoxyl retention enema by day and E.B.I. by night (Table I). By this combination it is thought that the infection is assailed from above by emetine bismuth iodide and from below by quinoxyl. The treatment is continuous, and is maintained for ten to twelve days. A total of 361 cases were treated in this manner: 323 had E.B.I. (20 to 30 grains) as well as quinoxyl during the course. The relapse rate of this series was 3.7%. Of those (38) who proved at first intolerant of E.B.I., E.P.I. in combination with quinoxyl was substituted, and 5 (13.1%) relapsed later. These refractory cases were eventually cured by further intensive treatments of E.B.I. and quinoxyl. Every effort has been made to follow up the after-results, and the majority have been examined at intervals for ten years and even longer (Table III), and these results verified. For the success of this treatment it is not necessary to restrict the dietary. Patients may be permitted a fairly generous breakfast and an equally generous lunch, but no supper.

Stovarsol.—In this series 8 were treated with 80 grains of stovarsol (8 grains for ten days), and 7 of these subsequently relapsed, but there were five instances of stovarsol poisoning. Signs of intoxication were a rosy urticarial rash, with pyrexia—a combination which may resemble German measles.

In one resistant case the patient, who had on his own initiative dosed himself for over one month, developed exfoliative dermatitis and subsequently arsenical pigmentation of the skin and rectal mucosa.

Carbarsone.—Carbarsone has enjoyed much popularity in America. The dose (4 grains twice daily for ten days) is the same as for stovarsol. It proved on trial no more effective, and there appears to be the same danger of arsenical poisoning. In 3 cases relapse took place directly a course had been completed. Regarding the curative value of carbarsone, a particularly acute case of amoebic dysentery was investigated in 1940.

Under medical direction the man had taken two pulvules (8 grains) daily for one month : nevertheless numerous unhealed amoebic ulcers, in which active *E. histolytica* were demonstrated, were seen in the rectal and lower sigmoid regions. He was subsequently completely cured by E.B.I. and quinoxyl.

Other Drugs Investigated

Enterovioform, containing 37.5% of iodine in gelatin capsules (4 grains), was given three times daily for ten days to 2 chronic cases ; these almost immediately relapsed. *Rivanol* was given in the form of retention enema of 1/2,000 solution, and 500 c.cm. was injected and retained. This substance has a soothing action on the mucous membrane, but appears to have no effect on the amoebae. *Gavano* (Bayer)—probably cephaeline—in tablet form three times daily for six days, was tried in 3 chronic cases with *E. histolytica* cysts, but it had apparently no action. *Chaparro amargosa*, an extract of the bark of *Castela nicholsoni*, has been extensively used in Mexico. In 3 cases it was tried as a retention enema for ten days. The results were inconclusive. Trials were also given to *conessine*, *kurchine hydrochloride*, and *kurchi bismuth iodide*, as advocated by H. W. Acton and R. N. Chopra (1933). No permanent cures were registered.

Conclusions

It became evident that in treating chronic intestinal amoebiasis the principle of " therapia magna sterilisans " has to be maintained. The employment of inefficient dosage of emetine and other drugs over a prolonged period

renders the infection eventually more difficult to eradicate. The following principles may be enunciated :

1. A fresh infection is more easy to eradicate than one of long standing.

2. The widely accepted practice of periodic injections of emetine, or even inadequate doses by the mouth of other emetine compounds, is not recommended, for it has been indicated that, so far from effecting a cure, this method tends to render *E. histolytica* emetine-fast.

3. Cases, however resistant, can eventually be cured, provided the course of anti-amoebic treatment is sufficiently thorough and prolonged.

4. Quinoxyl is a potent non-toxic drug, causing few disagreeable sequelae. In resistant cases of amoebiasis it produces the most permanent results in combination with emetine bismuth iodide. This treatment is usually well tolerated, provided that minutiae of dosage and timing are observed.

Results of Treatment

TABLE I.—*Showing Nature of Anti-amoebic Treatment on* 276 (51.5% *of the Series*) *previously Untreated Cases* (110 *with Active Amoebae and* 166 *with Cysts*)

Emetine bismuth iodide courses of 20 to 26 grains	29
Emetine periodide courses of 28 to 72 grains with tablets of fel bovinum	9
Quinoxyl pills (4 grains), plus quinoxyl retention enemata 2½%	18
Stovarsol 80 grains (cyst-carrier case)	1
Combined treatments :	
Emetine bismuth iodide 20 to 26 grains, plus quinoxyl retention enemata 2% (1 case, 5%)	198
Emetine periodide 20 to 30 grains, plus quinoxyl retention enemata 2½%	17
Auremetine 30 grains, plus quinoxyl retention enemata 2½%	4

Out of 276 cases there were only 4 (1.4%) uncured. Two definite relapses occurred one year later, and these were ultimately cured with further treatment. In 2 cases the result could not be followed up.

TABLE II.—*Showing Effect of Emetine Injection Treatment on* 259 (48.5% *of the Series*) *Cases* (138 *with Active Amoebae and* 121 *with Cysts*) *prior to Parasitic and Clinical Relapse*

Emetine injections ranging from 40 to 60 grains, given over a period of 4 to 6 months, in 2 cases reinforced by *intravenous emetine*	171
Emetine injections, plus 2 to 3 courses of emetine bismuth iodide, emetine periodide, or auremetine	67
Emetine injections, plus oral quinoxyl, stovarsol, carbarsone, or ipecacuanha	21

TABLE III.—*Further Anti-amoebic Treatment of Emetine-injection-treated Cases Detailed in Table II*

Emetine bismuth iodide courses of 30 to 40 grains	91
Emetine periodide courses of 30 to 70 grains with tablets of fel bovinum	6
Quinoxyl pills (4 grains), plus quinoxyl retention enemata 2½%	17
Stovarsol 80 grains, plus quinoxyl retention enemata 2½%	2
Emetol retention enemata	1
Combined treatments :	
Emetine bismuth iodide 19 to 30 grains, plus quinoxyl retention enemata 2½% (5% in 16 cases)	124
Emetine periodide 30 grains, plus quinoxyl retention enemata 2½%	17
Auremetine 30 grains, plus quinoxyl retention enemata 2½%	1

RESULTS OBTAINED IN THE SERIES OF TABLE III

Of these 259 there were 20 cases which relapsed still further, but all, with one doubtful exception, were eventually cured. The *relapse rate* was 7.7%. The following are typical resistant cases:

Case 1.—Infected in Tanganyika in 1917 ; continually relapsed after courses of emetine injections. Admitted to hospital 1920, 1922, 1923, for treatment with E.B.I., E.P.I., and ipecacuanha. Eventually cured in 1928 with full combined course of E.B.I. 30 grains and quinoxyl retention enemata 5% for ten days.

Case 2.—Infected in Nigeria in 1928 ; had numerous relapses in spite of emetine injections. Had amoebic hepatitis in 1935. Relapsed again after E.B.I. treatment. Eventually cured in 1936 with E.B.I. 20 grains and quinoxyl retention enemata 2½%. Reported up to 1941 in good health.

Case 3.—Had spent forty-two years in West and Central Africa. In 1925 suffered from amoebic dysentery and hepatitis, controlled by emetine injections. In 1934 *E. histolytica* cysts were found in the faeces, and sigmoidoscopy revealed amoebic lesions. He was treated by E.B.I. 30 grains and quinoxyl retention enemata 2½%. Febrile attacks recurring in 1935, he was operated upon for cholecystitis, but instead a chronic intralobar abscess in posterior part of right lobe of liver was exposed. During convalescence an acute attack of amoebic dysentery developed, with active *E. histolytica*. This was finally cured by repeating the course of treatment with E.B.I. and quinoxyl 5%. He has remained in good health ever since. It is a matter for speculation why the treatment which appeared ineffective in 1934 was curative a year later.

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AMOEBIASIS—PULMONARY COMPLICATIONS

BY

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Our experience in Natal leads us to believe that pulmonary amoebiasis is fairly common in the coastal belt, more particularly among the non-European population. It is our contention that whenever amoebic dysentery occurs pulmonary complications will be found in a high percentage of untreated cases. This is of great importance to the armies in the East. There is no doubt about the high incidence of amoebiasis in the population of Natal, as judged by the various hospital records. In 1939, for example, at the King Edward VIII Hospital for Natives, Durban, 1,520 cases of amoebic dysentery were admitted—i.e., one-tenth of the total admissions for the year. At the McCord Zulu Hospital in 1940, of 3,763 admissions 251 (6.7%) were cases of amoebic dysentery. Many of these cases had been wrongly diagnosed as pulmonary tuberculosis.

Amoebiasis of the lung may be primary or secondary. The primary form is comparatively rare ; the latter form is much more frequent than is thought.

Primary Pulmonary Amoebiasis

Manson-Bahr (1940) states that in primary amoebiasis of the lung "the entamoebae reach the lung by direct embolism from the gut wall. Having gained the pulmonary circulation, they form consolidated nodules, which later break down into small abscesses."

Our cases have presented the following signs and symptoms : cough, sputum, haemoptysis, wasting, night sweats, evening rise of temperature—in fact, all those of pulmonary tuberculosis. The main points leading to a diagnosis of primary pulmonary amoebiasis were : (*a*) a careful history revealing no family or other known contact with a case of

active open tuberculosis ; (*b*) a history of diarrhoea or dysentery ; (*c*) absence of tubercle bacilli in the sputum on repeated examination ; (*d*) the presence of eosinophilia ; (*e*) the presence of cyst forms of *Entamoeba histolytica* in the stools. On no occasion were amoebae demonstrated in the sputum.

Treatment.—The response of primary amoebiasis of the lung to emetine and carbarsone is remarkable and rapid. Emetine hydrochloride 1/2 grain hypodermically and one carbarsone tablet (0.25 gramme) per os are given twice daily at the same time for five days. Then carbarsone *alone* is given per os twice daily for five days, followed by rest for five days. If the condition has not cleared, the course is repeated.

Secondary Pulmonary Amoebiasis (or Amoebic Abscess of Lung)

In secondary pulmonary amoebiasis infection of the lung takes place by direct extension from an amoebic abscess of the liver. The abscess may rupture direct into the pleural cavity, giving rise to an empyema. More often the diaphragmatic pleura becomes adherent, thus shutting off the pleural cavity, and extension of the amoebic infection takes place direct into the lung base.

Symptoms and Signs.—The patient complains of cough, and sputum which is blood-stained at times and always characteristically "anchovy-sauce" in appearance, loss of weight, loss of appetite, malaise, and night sweats. Because of these symptoms the cases are often wrongly diagnosed as basal tuberculosis, more particularly in the Bantu, since it is known that basal tuberculosis is commoner in primitive races than in the European. A careful inquiry into the previous history may elicit a previously unsuspected dysentery. On the other hand, many patients give no history of any bowel disturbances. The cough is often troublesome and the sputum profuse. A mere glance at the characteristic "anchovy-sauce" sputum should direct attention to the correct diagnosis. The absence of tubercle bacilli in the sputum would tend to eliminate pulmonary tuberculosis. Examination of the chest reveals dullness at the right base, with deficient or absent breath sounds and often tenderness in the right hypochondrium, due to the associated hepatitis.

Radiological Appearances.—In primary pulmonary amoebiasis the radiograph may present the appearance of tuberculous infiltration or a bronchopneumonic consolidation. In secondary amoebiasis of the lung there is usually a well-marked opacity at the base, with obliteration of the costo-phrenic angle and immobility of the right hemidiaphragm. The inflammatory reaction spreads from liver to diaphragm, and the process extends then to the lung surface of the diaphragm and to the base of the lung before actual rupture into the lung takes place. The septum between the middle and the lower lobes, usually hardly discernible on the radiograph, takes part in the inflammatory process, becomes thickened, and appears as a fairly thick band limiting the inflammatory process to the base. On account of the elevation of the diaphragm from the hepatic abscess and the inflammatory products of the base, the septum usually assumes an elevated position with the convexity upwards. When the abscess ruptures into the base the thickened septum often prevents the rupture taking place into the middle lobe. From the base the abscess tends to rupture into the particular lobe bronchus or bronchi, and the patient coughs up the characteristic "anchovy-sauce" sputum. Often a radiograph will show a small pocket of air lying subjacent to the septum.

Bronchography.—This may be of value in differentiating amoebic abscess from lung abscess due to other causes, since in the latter condition a blocked bronchus is usually found. Basal bronchiectasis is easily distinguished on a bronchogram. We have introduced lipiodol into the right lung base in several cases of amoebic abscess in an effort to show a direct communication between the lung and the liver. As yet we have not been successful in this.

Treatment.—As in primary amoebiasis, emetine and carbarsone have a rapid and dramatic effect. Where an empyema is present, drainage is necessary in addition.

The following are records of seven cases illustrative of pulmonary amoebiasis.

Case I

This patient, a European aviator aged 32, was employed by Imperial Airways and travelled up and down Africa. About eight months previously he began to complain of cough and blood-stained sputum, which has continued up to the present time. He had lost some weight and his appetite "had gone off." His weight is now stationary. There was no history of any dysentery. He was referred to the King George V Hospital as a case of pulmonary tuberculosis. His personal and family history revealed nothing of note.

On examination his general condition was good. Neither anaemia nor clubbing of fingers was present. Crepitations were heard in the left mid-zone. Nothing abnormal was found in the cardiovascular and genito-urinary systems. The sputum was negative both on direct smear and on concentration. A radiograph showed an area of infiltration in the left lung (Fig. 1).

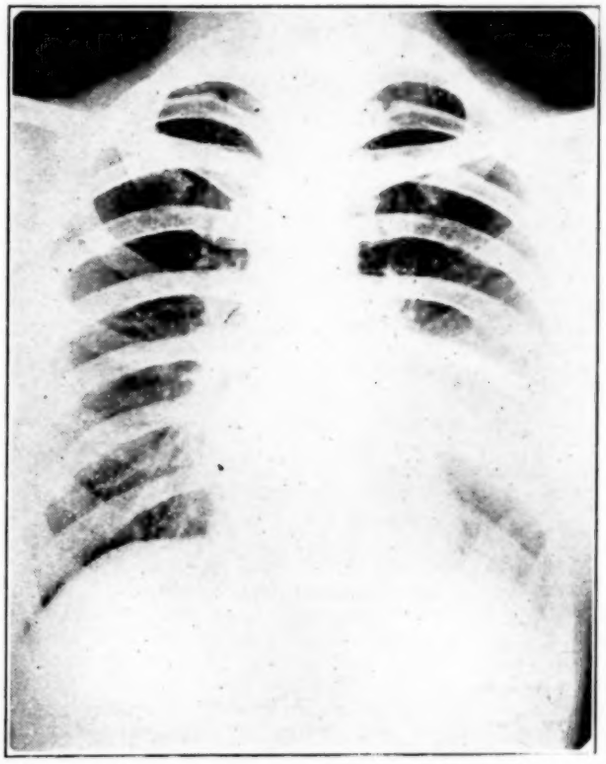

FIG. 1.—Primary pulmonary amoebiasis. Radiograph shows fairly extensive infiltration in left mid-zone and base.

A blood count revealed a 10% eosinophilia. His stool was examined and cyst forms of *E. histolytica* were found. A course of emetine and carbarsone was given, following which there was rapid and dramatic improvement and his cough and sputum cleared up completely. A radiograph taken after treatment showed the lung fields to be clear (Fig. 2).

Case II

This patient, a native labourer aged 35, was seen at a neighbouring hospital, where he was being treated for pulmonary tuberculosis. He gave a history of cough and sputum, blood-stained at times, associated with loss of weight and energy. His

sputum was repeatedly T.B.-negative. He had also had an attack of "dysentery" some two to three months previously. His general condition was fair; he had a cough productive of much "anchovy-sauce" sputum, but no clubbing of fingers.

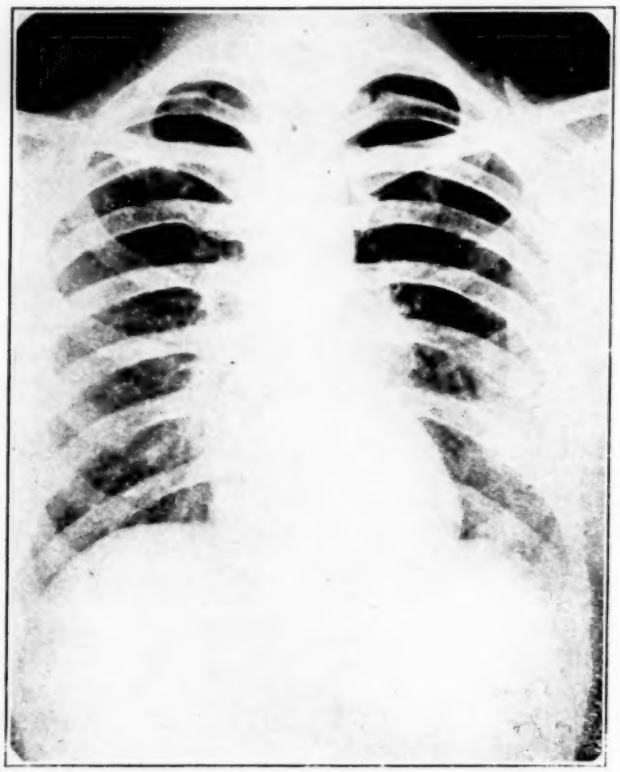

FIG. 2.—Radiograph, taken after one course of emetine, shows an almost complete disappearance of the original lesion.

There was dullness and poor air entry in the lower half of the right lung. The cardiovascular system was normal. The sputum was negative both on direct smear and on concentration. A blood count showed 10,000 white cells per c.mm., with an 8% eosinophilia. Examination of the stool on three occasions was negative for *E. histolytica*. A radiograph of the chest revealed a fairly massive infiltration at the right base and mid-zone.

A diagnosis of amoebiasis of the lung was made. Emetine and carbarsone were given, with marked improvement in the patient's general condition and great diminution in symptoms. A radiograph taken after two courses of emetine and carbarsone did not reveal any lung lesion.

Case III

This patient, a native labourer aged 38, when first seen had been treated for two months for pulmonary tuberculosis. He gave an indefinite history of abdominal pain about eighteen months previously, for which he had been treated in the out-patient department. He felt quite fit till about the last four or five months, when he began to complain of cough and sputum, blood-stained on occasion, and of progressive lassitude and disinclination for food.

On examination his general condition was poor and he looked ill. The temperature was 98 to 100.2°. There was dullness at the right base with poor air entry, and some moist rales were audible. The cardiovascular system was normal. Some tenderness was present in the right hypochondrium. The liver was not palpable. The sputum had an "anchovy-sauce" appearance; it was profuse and somewhat offensive, and was negative on direct smear and on concentration. Repeated blood counts showed a polymorph leucocytosis up to 12,000 per c.mm., but no eosinophilia. A radiograph revealed a fairly extensive lesion at the right base.

Following treatment with emetine and carbarsone, there was a very rapid and dramatic improvement and his cough and sputum disappeared. The lung lesion was not seen in a radiograph taken after one course of emetine and carbarsone.

Case IV

A native labourer aged 36 years first developed pain in the right side of his chest six months previous to admission. Cough ensued, with sputum which later became blood-stained. Early in 1939 he had had abdominal pain with frequent blood-stained stools, for which he was "treated" by a native witch-doctor.

On examination he was seen to be very thin. There were depigmented marks on the face, present from childhood, and slight clubbing of fingers. Breath sounds were absent over the right lower lobe in front, and crepitations were heard posteriorly. The sputum was T.B.-negative. There was tenderness over the liver, the edges of which were palpable.

On admission he was having a frank haemoptysis, but later produced "anchovy-sauce" sputum. A radiograph revealed an opacity at the right base. Amoebic abscess of the lung was diagnosed. No hiatus communicating with the liver detected by bronchography. Following emetine therapy the patient showed much improvement in general condition, and the lesion at the right base was not present on serial radiographs.

Case V

This patient, a male native, was a proved case of amoebic abscess of the right base. Bronchography was done in an attempt to outline the hiatus communicating between the liver and the lung. This, however, was unsuccessful. Following bronchography he was treated with emetine and carbarsone, the lesion then clearing completely.

Case VI

This patient, a native labourer aged 37, was admitted on May 7, 1940. For the last year or so he had had pain on the right side of his chest and cough associated with periodic attacks of shortness of breath. He described his sputum as "dark yellow" and blood-stained at times. He had had a frank haemoptysis about six months previously. He did not complain of night sweats, and his appetite was good. One sister has a "bad cough." He gave no history of amoebic dysentery, but was treated for roundworms in 1938, and had had an untreated urethral discharge in 1935.

On examination his general condition was fairly good; he was anaemic and afebrile, and there was clubbing of fingers. Signs of a large cavity were observed at the right base, and there was tenderness over the liver. Sputum was copious but not foul, brownish, and T.B.-negative. A radiograph revealed a cavity at the right base. Bronchography on May 10 showed the lipiodol filling up the bronchi surrounding the cavity, which was well outlined.

A tentative diagnosis of amoebic abscess with cavitation was made, and emetine and carbarsone were given. About three weeks later the cavity had completely disappeared, the cough and sputum had practically ceased, and there was great improvement in the patient's general condition.

Case VII

This patient, a native labourer aged 22, had been seen at a neighbouring hospital as a case of pulmonary tuberculosis. He gave a poor history, but so far as could be ascertained he began to cough about a month before admission. His sputum had been blood-stained on and off for about two weeks. He complained of progressive loss of weight and energy, loss of appetite, and night sweats. About six months before the coughing began he had had an attack of diarrhoea but could not remember whether he had passed any blood. The diarrhoea disappeared after he had taken one bottle of medicine. About two months earlier he had had some abdominal pain. He was admitted to hospital and a diagnosis of amoebic hepatitis was made, but he left at his own request after receiving only two emetine injections.

On readmission to hospital he looked ill and appeared to be somewhat dyspnoeic. The temperature was 98 to 102°. Clubbing of fingers and pallor of mucous membranes were present. There were dullness and crepitations at the lower half of the right chest, and a few moist rales at the left mid-zone. The cardiovascular system was normal. The liver edge was palpable two fingerbreadths below the costal margin, but was not tender. The sputum was negative on direct smear and on concentration. A radiograph showed infiltration at the right mid-zone and base

and some infiltration at the left mid-zone. Cyst forms of *E. histolytica* were found in the stool. There was a leucocytosis of 10,200 per c.mm., with a 7% eosinophilia.

He was given a course of emetine and carbarsone, and his temperature came down to normal after forty-eight hours. A radiograph taken ten days later showed the lesion on the left side to be cleared, and there was some clearing of the lesion on the right. The course of emetine and carbarsone was repeated, and another radiograph after one month revealed still further clearing of the lesion on the right. At this stage the white cells numbered 8,700, with a 5% eosinophilia. Stool examination was negative for *E. histolytica*.

This patient is feeling much better; his cough and sputum have greatly decreased, and he is anxious to leave hospital. At the time of writing he is still under treatment, but will be discharged as soon as the lesion at the right base has cleared.

Commentary

The diagnosis of pulmonary amoebiasis is important because of its very rapid response to a specific therapeutic agent—emetine. In the diagnosis various factors must be considered:

(*a*) *History.*—A history of blood and mucus in the stools, no matter how long before the lung symptoms are manifest, is an important point. However, many patients do not admit to any previous bowel disturbances.

(*b*) *Site of Lesion.*—In secondary pulmonary amoebiasis the lesion is inevitably at the right base.

(*c*) *Stool.*—Examination of the stool very often reveals the presence of cyst forms of *E. histolytica*.

(*d*) *Sputum.*—The macroscopic appearance of the "anchovy-sauce" sputum is characteristic. Microscopically the sputum reveals an absence of other bacilli, such as tubercle bacilli. In primary amoebiasis *E. histolytica* is said to occur in the sputum, but in our series of cases, in both the primary and the secondary forms, we have been unable to demonstrate the entamoeba.

Differential Diagnosis

Tuberculosis.—Involvement of the right base with the apices clear is against tuberculosis, except in primitive races, in whom basal tuberculosis is not uncommon. Repeated negative sputum examinations would rule out pulmonary tuberculosis.

Bronchiectasis.—Bronchography would demonstrate the presence of bronchiectatic dilatation at the site of the lesion.

Foreign Body in Bronchus.—Unless there is a clear history of aspiration of a foreign body or the foreign body is easily seen on the radiograph, bronchoscopy is indicated in order to make a diagnosis.

Neoplasms.—A neoplasm may cause bronchial obstruction with resultant atelectasis, which may simulate secondary amoebiasis in the radiograph. Bronchography may show a characteristic "rat-tailing" of the affected bronchus. Bronchoscopy would be of value in differentiating a malignant from an innocent tumour by obtaining a biopsy specimen.

Syphilis of Lung.—As is well known, the symptoms and signs of syphilis are protean in their manifestations. Particularly in the Bantu, syphilis may show itself in the lung as a large tumour or as an extensive infiltration. The presence of a positive Wassermann reaction and the rapid response to the arsenicals would confirm the diagnosis.

Unresolved Pneumonia.—This may show as an opacity on the radiograph. Serial radiographs would show a gradual disappearance of the lesion.

Avitaminosis.—Jersild (1939) reported a case of haemoptysis and lung infiltration caused by avitaminosis. In the Bantu in South Africa, more particularly in the urbanized native, symptoms of avitaminosis are very frequent. We feel, therefore, that a condition of avitaminosis should be considered in a differential diagnosis.

Where the diagnosis of pulmonary amoebiasis cannot be definitely established we feel that in suspicious cases the patient should be given the benefit of a therapeutic test with emetine and carbarsone.

Summary and Conclusions

Pulmonary amoebiasis is discussed.

Seven cases of primary and secondary amoebiasis are described.

The importance of examination of the stool, sputum, and blood is emphasized.

Bronchography may be of value in demonstrating a communicating hiatus between the primary lesion in the liver and the secondary lesion at the right base.

All cases of pulmonary amoebiasis show a striking response to emetine and carbarsone.

We wish to thank Mr. M. E. Gibson, M.S.R., for taking the radiographs.

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THE SURGICAL COMPLICATIONS OF AMOEBIC DYSENTERY

BY

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The British Empire is at the moment fighting for its existence in a vast area where amoebic dysentery is endemic. So ubiquitous is this disease that about one-fifth of the whole population is involved. After the evacuation of Gallipoli in the last war 23.7% of 971 cases were infected. In China the percentage of carriers in over 13,000 cases was 20.3, and amoebic dysentery is the direct cause of between 5 and 10% of all hospital admissions. Since its effects may extend over a period of from three months to thirty years it is important, at this time, to emphasize that it has significance in every branch of clinical medicine, and will continue to have for many years to come.

It is necessary first to recall some of the pathological features of the primary lesion, which is an ulcerative inflammation of the colon. The *Entamoeba histolytica* gains access to the large bowel through being able not only to attack and ingest the mucosa but to secrete a ferment which causes coagulation necrosis and tissue lysis. Having reached the submucosa, it multiplies in the centre of a small nutritive cytolysed area, which in its turn, although surrounded by some oedema, is not shut off by an extensive tissue reaction. Spreading in this way, it causes thrombosis of veins and venules, invades the clot, gets into the portal circulation, and is from then onwards caught in the wide mesh of the liver substance. That this is usually a most effective filter is shown by two facts: (1) it was found impossible to produce anything more than cloudy swelling of the liver by injecting very large numbers of amoebae into the portal vein of kittens; (2) amoebae rarely get into the systemic circulation, although amoebic abscess of the brain and the epididymis is well known to occur very occasionally.

It is true that cases of infection of the urinary and even of the uveal tract have been described; but these have not been accepted as genuine by many critical workers. Nevertheless the fact that such records do exist should be a

stimulus to further clinical observation. In any case, further involvement usually takes place by direct spread to contiguous tissues, from either the liver or the bowel, and its clinical results may be conveniently described under one of two headings—hepatic or colonic.

Involvement of the Liver and its Effects

As previously stated, hepatitis is secondary to an ulceration of the colon. This is widespread in about half the cases, but it is important to add that a large proportion of hepatic complications occur in just those cases in which the caecum of an apparently healthy patient is the seat of one or more solitary ulcers. When the liver is invaded by amoebae it may become suddenly enlarged and inflamed to a surprising degree. This phenomenon, known as acute hepatitis, is often accompanied by an acute inflammatory reaction in the contiguous pleura or peritoneum, and consequently may produce effects which equal in drama and interest anything that occurs in clinical medicine. Moreover, nothing is so therapeutically satisfactory as an acute condition which is resolved by the administration of 2 to 3 grains of emetine hydrochloride.

In the ordinary course of events, when the case is elucidated the following features emerge: (1) There is a history of diarrhoea or amoebic dysentery, which may coexist or may have occurred a long time ago. (2) There are fever and pain: the former is variable and is, in contradistinction to that caused by the "ordinary" acute abdomen, apt to be spiky, high, and associated with sweating and chills; the latter is classically referred to the shoulder or, if the parietal peritoneum is involved, to the abdominal wall, causing rigidity and tenderness. (3) The liver is enlarged. (4) There is a characteristic leucocytosis of from 10,000 to 30,000, in which the polymorphonuclear cells seldom make up more than 75 to 80% of the total. If the leucocytosis is more than 80% the condition is probably not amoebic or there is an associated secondary infection.

Differential Diagnosis

These cases, often admitted as emergencies, are diagnosed by the clinician who is not "amoeba-conscious" as diaphragmatic pleurisy due to basal pneumonia, or appendicitis, or the perforation of a hollow viscus. Malaria with pneumonia, and acute cholecystitis, are not uncommon preliminary diagnoses, made before or on admission. It is fortunate in acute cholecystitis that the necessity for intervention is not urgent and that emetine does it no harm, for the differentiation may produce real difficulties. But the word "diarrhoea" somewhere in the history gives a clue to the diagnosis; the blood count provides strong circumstantial evidence; and the examination of a little blood-stained mucus from the stool makes it a certainty. Emetine provides a cure for the immediate symptoms. Below are two typical case histories:

Case 1.—A woman aged 50, when seen, was doubled up with acute abdominal pain. There was extreme tenderness and boardlike rigidity over the upper right side of the abdomen, which extended beyond the midline to the left, and on the right, down as far as the right iliac fossa. She had vomited at the onset about five hours previously; temperature was 103°, pulse 110. There were no physical signs of pleurisy or pneumonia, and no history of dysentery except that everyone in the East has a short attack of diarrhoea at some time or other. There was a vague history of indigestion, more suggestive of cholecystitis than anything else. No special diagnostic methods were available, so with some trepidation she was given an anaesthetic, and on palpation of a relaxed abdomen the liver was felt to be enlarged.

Case 2.—This patient, aged 43, was ordinarily a robust healthy woman. She was three months pregnant, and during an influenza epidemic complained of some malaise and a little pain in the back, with a temperature of 100°. Two years previously she had suffered a mild attack of acute amoebic dysentery, which was adequately treated and carefully controlled in the interval. Her stools after treatment were consistently negative, both for amoebae and for cysts. On examination her liver was painlessly enlarged down to just below the anterior superior spine. She had a leucocytosis of 23,000, of which 72% were polymorphs. This condition rapidly subsided with emetine therapy, and for the last fifteen years no further symptoms have appeared.

Between these two extremes come the cases which unfold themselves with textbook uniformity. In all of them, once the diagnosis is made, the treatment is simple. It consists in giving 1/2 grain of emetine deep subcutaneously or intramuscularly thrice daily for about three days, after which the dose is reduced to 1 grain daily. More than 15 grains should not be administered at any one time, and the patient should be in bed. After a few days' rest the standard routine treatment for amoebic dysentery, consisting of emetine bismuth iodide and quinoxyl, should be given.

If this acute stage is unnoticed the case may progress until massive colliquative necrosis of a large or small area in the liver has taken place and the patient gets a liver abscess. Its physical signs and symptoms are usually clear-cut. They are well known and adequately described. But in spite of this it has to be realized that almost every experienced physician in tropical practice has at some time or other seen at necropsy a large liver abscess which has been unrecognized during life.

Within the last few weeks a patient was admitted to the French Hospital in a state so serious as to preclude exact diagnosis or treatment. A few weeks previously a perinephritic abcess had been opened elsewhere. He died within twenty-four hours, and at necropsy his liver, which was of normal dimensions, was found to contain an abscess the size of a large orange in the right lobe posteriorly. Pleural and peritoneal reaction was minimal.

For the exact diagnosis and treatment of liver abscess paracentesis is necessary, and when proper precautions are taken this is a safe procedure. These precautions are: (1) the needle track through the parietes should be anaesthetized with novocain; (2) the needle should be of fairly wide bore and be marked at intervals of half an inch: (3) it should not be inserted more than 3¼ in. for fear of entering the vena cava, and its direction should be upwards and inwards; (4) the shortest route to the abscess should be taken, and this is indicated by local bulging or radiological evidence of a change in the height of the diaphragm. Aspiration should be repeated until no more pus is obtained, and the pus should be cultured. Amoebae are seldom found in the first aspiration.

One important fact should always be borne in mind. A liver abscess is a cold abscess and should be treated as such. If culture shows it to be secondarily infected drainage is indicated, and in such cases it is imperative that the drainage track should be sealed in some way or other. The growth of a few small colonies of staphylococci, however, is not in itself an indication for radical surgical measures. Where emetine has no effect on the temperature chart it is a sure sign of secondary infection. If the patient has a pleural effusion and a liver abscess beneath the diaphragm the following line of treatment should be followed:

Both pleurisy and the liver abscess should be treated by aspiration. If the former becomes grossly infected from the lung, pleural drainage should be deferred, if possible, until the liver abscess has been aspirated several times and the patient is well under emetine treatment. If both are secondarily infected, then radical transpleural and/or transdiaphragmatic drainage should be done. In the few cases of this kind seen by me the pleural cavity has been well sealed off by adhesions.

Further extension of the disease beyond the liver is as a rule by direct spread. It is well known that the diaphragm and lung may be involved and that a pleural effusion may occur as with any inflammatory process below the diaphragm, but it is not so well known that from the liver it may spread to the skin, producing a large ulcerating surface. Such a case I was privileged to see in consultation. It was reported and illustrated by Heimburger (1925) so precisely that the account may profitably be consulted by anyone interested in the histopathology of amoebiasis. There was an area about the size of the palm of one's hand covered with pale oedematous granulations; its appearance was as if a quantity of red brickdust had been ground into the ulcerated surface. It healed rapidly with emetine therapy.

A liver abscess sometimes extends to the abdominal cavity. When this happens the size of the liver may be difficult to determine, and an inflammatory swelling arises which is, as a rule, somewhere continuous with the liver margin. This swelling may extend quite low down in the abdomen, limited either on the right or on the left by the falciform ligament. When it occurs on the left side it is very puzzling, because the occasional abscess arising in the left side of the liver is frequently overlooked. Such an abscess may extend well to the left above the spleen. In ordinary clinical practice it would be regarded as the result of a localized perforation of a peptic ulcer. Such localized intraperitoneal collections of pus from a liver abscess often have a somewhat indirect connexion with the liver, and it may be wise to open them and wash them out. If this course is taken, intentionally or inadvertently, the wound should always be sewn up without drainage and the parent liver abscess aspirated after localization. No harm comes if the patient is immediately put under emetine, and this should, if possible, be invariably done before any intervention is contemplated.

An extremely acute abscess may sometimes perforate into the peritoneal cavity, the case being admitted as an acute abdominal catastrophe. The condition is nearly always such as to preclude any surgical intervention.

Direct Spread from Colonic Lesions

Involvement of the muscular and peritoneal coats of the bowel wall is not uncommon. Sir Leonard Rogers has found amoebae in the lymph adherent to the base of an unperforated ulcer. Actual perforation is rare, but a localized slowly spreading peritonitis is by no means uncommon. It is important to bear in mind its possible existence, because it complicates the diagnosis of other abdominal conditions. The finding of amoebae in the stools makes the diagnosis simple.

Localized abscesses round the appendix are well known but not often seen, and the same may be said of retroperitoneal and perinephric abscesses. If their amoebic origin is not recognized extensive invasion of the abdominal wall may take place.

Ulcers of the colon may be secondarily infected and may produce a localized inflammatory mass which resembles diverticulitis. The lumen of the bowel may be so narrowed by oedema or fibrosis as to produce obstruction. In these cases routine treatment of the dysentery is not always sufficient, and a resection has to be performed.

Finally, the rectum is a common situation for amoebic lesions, and in severe untreated cases these involve the tissues in the ischio-rectal fossa, producing fistulae and ischio-rectal abscess. These may occur in patients who are extremely ill, originating in quite small ulcers without much surrounding infiltration. In more chronic cases the local ulceration may be widespread and, owing to secondary infection, the surrounding tissues be infiltrated widely. This may produce a particularly intractable form of stricture requiring colostomy for temporary relief.

Conclusion

It should be remembered that local lesions in the bowel do not as a rule progress thus far, but they do frequently and for a long time act as foci of irritation, exercising a profound influence on the physiology of bowel movement. Such patients have localized spasm and tenderness for years, their bowel is irritable, and they pass frequent stools containing a little mucus. They become bowel-conscious, and haunt the "colon lavatories" in the West End of London and the consulting-rooms of sympathetic physicians. They are diagnosed as cases of anything from spastic constipation to mucous colitis. They require above all things rest, both of the mind and of the colon.

This account by no means exhausts the widespread manifestations of amoebiasis, but enough has been said to show that a knowledge of its manifestations is necessary to every clinician handling cases in or from the East, and to suggest that to the use of the stethoscope must be added that of the microscope and sigmoidoscope as part of the routine examination of patients. By the employment of these methods we arrive at a positive diagnosis of a disease which can be "cured" in a sense that cannot often be used in the case of diseases commonly met with in this country.

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CYSTICERCOSIS EPILEPSY

BY

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The case reported by Dr. W. Blyth (1941), to which he applied the above diagnosis, has many points of similarity to one which came under my notice some years ago, and in which a diffuse cysticercosis of the brain was found post mortem. Out of a large number of post-mortem examinations on mental hospital patients extending over a period of thirty-odd years this was the only case I met with. The condition, though rare, is of interest because—as pointed out by Sir W. P. MacArthur (1941)—of "the importance of considering it as a possible cause of epileptiform attacks commencing in a previously healthy adult after service or residence abroad." The histories of all the cases I found recorded come within this category, though one might extend the term "epileptiform attacks" to those presenting other ill-defined and vague symptoms of cerebral disease. The value of radiographic investigation in the diagnosis is emphasized by Dr. Blyth, but it is not clear from the particulars he gave that these investigations did reveal the presence of cysticerci in the brain tissue of his patient.

References in Literature

The case which came under my observation, and in which unfortunately the possibility of cestode infection as a cause did not occur to me, demonstrated from the necropsy that a condition of cysticercosis of the brain diffuse in distribution produces a clinical picture of epilepsy with dementia difficult to distinguish from the idiopathic form except by the more rapid development of the dementia and of a fatal termination. The cysts examined showed no evidence of calcification. I was so impressed by this massed invasion of the brain by these parasitic cysts that I consulted a number of standard textbooks on psychiatry and cerebral

pathology, but found only scanty reference to the condition, and in some instances none at all, and could discover less than half a dozen cases reported in medical journals in this country over a period of twenty-five years. From these sources I quote the following references:

Von Graefe, it seems, was the first to demonstrate the presence of cysticerci in the vitreous humour. Fagge mentions that as a bladder worm (cysticercus) the parasite is most frequently met with in the eye and in the brain; is often solitary or appears in small numbers, but that probably it is most frequently present in the muscles and subcutaneous tissues, where it is apt to escape notice. Da Costa states that in the brain the chief symptom is violent and increasing epilepsy. Bianchi mentions it in a footnote to his chapter on epilepsy. In *Twentieth Century Practice* (Collins, New York) there is an account of the condition in which it is stated that cysticerci in the brain are more common than echinococci; the symptoms are various—hysteria, hypochondriasis, acute mania, and various motor symptoms resembling Jacksonian epilepsy or cerebral tumour. Osler states that if the ripe ova of *Taenia solium* get into the stomach of man he is liable to become the intermediate host (the part usually played by the pig). This accident, Osler suggests, may occur in an individual the subject of *T. solium*, the most likely manner being by the forcing of mature proglottides into the stomach as by prolonged vomiting. The symptoms produced depend on the number of ova ingested and the localities reached: he groups them under general, cerebrospinal, and ocular.

In his own experience Osler met with only one instance—a patient who was admitted to his wards in a stiff and helpless condition, complaining of numbness and tingling in the extremities and general weakness, and who was first thought to have a peripheral neuritis. On examination subcutaneous nodules were found which proved to be cysticerci. There were none in his eyes, and he had no symptoms pointing to the brain. He saw another, with Friedländer in Berlin, with symptoms of diabetes and anomalous nervous disturbances. The post-mortem examination revealed a cysticercus beneath the valve of Vieussens and pressing on the floor of the fourth ventricle. As to the local distribution of cysticerci, he quotes 155 cases compiled by Stiles: the parasite in 117 was found in the brain, in 32 in the muscles, in 9 in the heart, in 3 in the lungs, subcutaneously in 5, and in the liver in 2. He adds that, except when in the eye, the diagnosis can rarely be made, or, when subcutaneous, one may be excised and examined. Purves-Stewart (1937) quotes a case (reported in the *Centralblatt für Neurologie*, 1902) of a characteristic form of vertigo produced by the presence of a cysticercus in the fourth ventricle. Beattie and Dickson (1925) state that the immature larval or cysticercus stage of *T. solium* may occur in man not only in muscle but in the skin and subcutaneous tissues, where they may be present in large numbers; and in various organs, especially the eye and the brain. In the brain the cysts may attain a considerable size. In the eye they have been known to persist for twenty years. Such infections originate (*a*) from the patient himself if harbouring the adult cestode, or (*b*) from a fresh infection from without. Those authors indicate the manner of its dissemination thus: after ingestion by a suitable intermediate host the embryonal shell is dissolved off and the active embryo proceeds to bore its way through the intestinal wall. By way of the lymphatics, or more probably by the mesenteric veins, it reaches the liver (which in the case of *T. echinococcus* forms the special habitat for its bladder-worm stage). In the case of *Cysticercus cellulosae* the embryo travels from the liver, probably by way of the blood stream, to muscles and other tissues of the host's body. In whatever situation the embryo is finally lodged it settles down and becomes passive, loses its hooklets, and undergoes distension with fluid, forming a cyst, and thus entering upon the larval, bladder-worm, or cysticercus stage of its development.

Stitt *et al.* (1938) state that, the segments or ova of *T. solium* having been ingested by the hog, the six-hooked embryo is liberated and becomes encysted chiefly in the tongue, neck, and shoulder muscles as an invaginated scolex ("measly pork"). They point out that the cysticercus of *T. saginata* (*C. bovis*) contains less fluid than *C. cellulosae*, and that, man having ingested the *C. bovis* in raw or imperfectly cooked beef, the adult stage of *T. saginata* becomes established in his alimentary canal in about two months. In Abyssinia, they state, this type of cestode infection is said to be universal, and a man without a tapeworm (*T. saginata*) is considered to be a "freak." An important point is the fact that its larval stage scarcely ever appears in man, and it is therefore a much less dangerous parasite than *T. solium*, which readily establishes a larval existence in man if the ova are introduced into the human stomach. If the infection by *C. cellulosae* is not heavy, few symptoms may be observed. It, however, tends to invade the brain, next in frequency the eye, and so cause convulsions, blindness, or death. Instead of being the size of a pea these cysts, when forming in the brain, they add, "may be the size of a walnut or larger. *T. solium* infection is comparatively common in North Germany, but is exceedingly rare in England and the United States." Other references to the condition may be found in works on parasitology and in various Continental reviews and reports. Of actual cases reported in medical journals in this country the following were the only instances I could discover:

(*a*) Multiple cysticerci of the brain and epilepsy (J. R. Gilmour, 1902).
(*b*) Two cases of cysticercus cellulosae of brain (R. S. Black, 1903).
(*c*) A case of cysticercus of brain (W. C. Sullivan, 1903).
(*d*) Two cases of cysticercus of brain associated with epilepsy (G. E. Peachell, 1916).
(*e*) A case of cysticercus of brain reported at the Bath Clinical Society (Waterhouse, 1911).

Record of a Case

The patient who came under my observation was admitted to the mental hospital certified as a person of unsound mind. He was a well-nourished man aged 31, an ex-soldier who had served in India. He had a history of three months' "behaviour disorder," having become so irritable and strange that he had lost his employment as a machine-man in a factory; he had become unmanageable at home and had threatened to shoot himself. He had no history of psychopathic heredity and none of venereal infection, and had previously enjoyed good health. Physical examination indicated an organic or toxic lesion of the central nervous system; he exhibited a degree of speech impairment with fine lingual tremors, exaggeration of deep reflexes, and Rombergism. Ocular movements were normal, the pupils equal but sluggish (fundi unfortunately not examined), and mental processes retarded, with a degree of confusion bordering on disorientation. He had fleeting visual and aural hallucinations and was unable to converse intelligibly. His habits were neglectful and unclean. The Wassermann reaction of blood and cerebrospinal fluid was negative, and the urine was negative for albumin and sugar. His condition suggested a tentative diagnosis of atypical G.P.I. Within twelve months he developed increasingly frequent epileptiform attacks indistinguishable from true epileptic fits; these were accompanied by a progressive degree of dementia till his death in a series of epileptiform attacks four years after admission to hospital.

P.M. Notes.—The brain unstripped weighed 48 oz.; there was an excess of C.S.F.; the pia arachnoid was congested and thickened, and decortication occurred on stripping it from areas over the cysts. Numerous small cysts were seen scattered over the cortex. They were encapsulated and semi-transparent, ovoid in shape, and varied in size from that of a pea to a little larger. They were mostly single, occasionally in groups of two or three. Their surface distribution appeared to bear a direct relation to the vascular supply, being most numerous in the area of the middle cerebral artery, and this may explain why the brain with its lavish vascular supply appears to be for the parasite a *locus minoris resistentiae*. Most of the cysts made cup-like depressions in the cortex; some were buried in it. They were also present in the sulci and fissures, but were absent on the base. On section of each hemisphere none were observed in the centrum ovale. In the lateral ventricles several of larger size were seen pushing up the ependyma of the floor and sides. In the basal ganglia cysts were present in the region of the lenticular and caudate nuclei and optic thalami. In the midbrain two were located in the right cerebral peduncle in the region of the substantia nigra and in the tegmentum, one below the red nucleus and two pressing into the aqueduct. None were found in the pons or medulla, and only two in the right cerebellar hemisphere.

The spinal cord was not examined. On a moderate computation there were upwards of a hundred cysts scattered throughout the brain. In other organs four were found in the left ventricle of the heart, in the myocardium ; none in the liver or other glands. A dissection of the muscles was not undertaken except for those of the right thigh, where one cyst was seen embedded in fibres of the quadratus, which was the only muscle examined. No cestode was found in the alimentary canal. Few of the cysts showed any signs of calcification. On examination under low magnification the cysts had a defined fibrous capsule with some infiltration by small round cells and surrounded by a zone of increased neuroglial fibre growth with an increase of young glial cells. The neurones in close proximity were seen in varying states of degeneration, grading into normal cortex. The vascular elements were dilated, but there was no evidence of cellular infiltration of the perivascular sheaths. On section of some of the cysts the scolex and hooklets of the embryo were easily identified.

As the degree of calcification of the cysts is determined by time and other factors, it would be of interest to know if the radiographic films of the skull taken by Dr. Blyth revealed the presence of cysts in the cerebrum.

The few instances of this condition of cysticercosis I found reported in this country all occurred in ex-soldiers or in persons who had resided abroad. The cases recorded by Dr. Blyth and Sir W. P. MacArthur are opportune in illustrating the importance of considering the possibility of cestode infection as a cause of epileptiform attacks (and I would add all cases presenting anomalous signs of cerebral disturbance, from neoplasm to early atypical G.P.I.), particularly as at present so many of our countrymen are on active service in Africa and the East.

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MASSIVE ADRENAL CARCINOMA WITH PSEUDO-HERMAPHRODITISM

BY

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Sex characters are primarily determined by the sex chromosome, but hormonal imbalance can alter the picture profoundly. A large group of cases is known in which changes in the adrenal glands can be demonstrated, presenting the "adreno-genital syndrome." In these cases the female sex characters retrogress, being replaced by those of the male. The changes are mainly dependent on the age of onset and the pathological character of the causative lesion.

A tentative classification may be made, following Broster and others (1932).

1. Clinical:
   (a) Adrenal pseudo-hermaphroditism (before onset of female sex characters).
   (b) Adrenal virilism (onset after puberty).
   (c) Multiglandular syndrome (Cushing, Achard-Thiers, associated with anterior pituitary changes).
2. Pathological:
   (A) Tumours: adenoma, adenocarcinoma, undifferentiated carcinoma.
   (B) Simple hyperplasia (Vines's demonstration of the selective staining of the cortical cells by Ponceau's fuchsin (Broster and Vines, 1933).

The following is the record of an interesting example of Type A.

Case History

A female child aged 2 years 2 months was admitted to the Loughborough General Hospital, under the care of Mr. A. F. Goode, on September 12, 1940. The mother complained that the child had been fretful, and that its abdomen had been swelling during the past few weeks.

On examination the patient was seen to be a thin, puny, wasted infant. Cardiovascular and respiratory systems were normal. The breasts were minute ; there was a growth of hair in the axillae and in the pubic region, of male distribution ; the clitoris was enlarged, with a small glans, and the rudiments of a prepuce were visible. An enormous ovoid smooth hard mass in the right side of the abdomen could be felt and pushed forward from the loin. The swelling bulged out the right flank : it extended vertically from the costal margin above to the false pelvis below, and medially beyond the umbilicus. It did not move on respiration, and was dull to percussion. The diagnosis was massive adrenal cortical tumour with pseudo-hermaphroditism. On account of its size it was decided that exploratory approach could only be made transperitoneally.

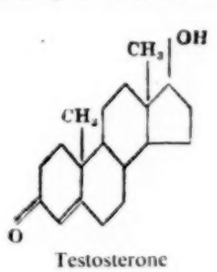
A laparotomy was done by Mr. Goode on September 13. Through a right paramedian incision a very large tumour of the right adrenal gland was seen perched on top of the right kidney, which appeared normal in size but was depressed down into the right iliac fossa. The growth was ovoid in shape, measured 9 in. vertically by 6 in. across, and its surface was covered by a very vascular capsule, fixed superiorly and posteriorly in the region of the portal fissure and inferior vena cava. There were several enlarged para-aortic glands, and the liver was also slightly enlarged. Removal of the main tumour was not attempted. An enlarged para-aortic gland was taken for section, and the abdomen was closed. The child's general condition rapidly deteriorated, and in spite of anti-shock measures she died next day.

Post-mortem Findings.—The vascular capsule over the tumour of the right adrenal gland was incomplete above, where the growth was attached to the diaphragm and inferior vena cava. Para-aortic glands and glands of the portal fissure were infiltrated. The growth itself was of a greasy yellow appearance, was friable, and had large areas of haemorrhagic necrosis. The left adrenal and both kidneys appeared normal. There were no obvious secondaries in liver or lungs. The uterus was very small and the ovaries were represented by two tiny fibrotic nodules.

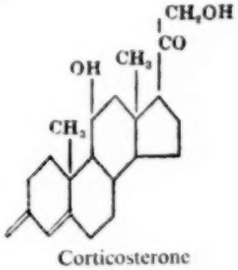
A portion of the growth was sent for examination, and Prof. G. Haswell Wilson reported as follows: "A cellular malignant tumour with the characters of a carcinoma of the suprarenal cortex. Details are more distinct in the gland specimen, as the tumour itself is the site of extensive necrosis."

Discussion

The formulae of testosterone and corticosterone, the type substances of the male and cortical hormones respectively, as given by Gaddum (1940) are :



Testosterone



Corticosterone

and their similarity is apparent. Also to be noted is their close chemical relation to those other sterones oestradiol and progesterone. Clark (1940) states that corticosterone can indeed be synthesized from testosterone.

A further point of interest arises from Broster's (1941) report of a case of "feminism" in the male ; this showed

hypertrophy of the adrenals, a positive Ponceau-fuchsin reaction, and clinical improvement following unilateral adrenalectomy. Sterone excretion was reduced following operation.

Perhaps these intersexual changes may be diagrammatized like this:

♀ + excessive or altered sterone → virilism
♂ + excessive or altered sterone → feminism

thus providing a further example of the bisexual properties of the sex hormones when acting on the different biological soils determined by the sex chromosomes.

My thanks are due to Mr. A. F. Goode, honorary surgeon, Loughborough General Hospital, for permission to publish this case, and to Prof. G. Haswell Wilson, University of Birmingham, for the pathological report.

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Medical Memoranda

Local Chemotherapy as a Curative Measure

The prophylactic value of the sulphonamide group of drugs when applied locally in potentially infected wounds is amply witnessed by the numerous accounts published. My experience in this direction has been small, but I have used local chemotherapy from a curative point of view in wounds already infected.

I first used sulphanilamide locally in two cases of tuberculous infection. One patient, a girl aged 14, exhibited a tuberculous osteitis of the third left metatarsal and a cold abscess on the ulnar border of the right hand. Both these lesions eventually gave rise to ulcers which defied treatment until a paste similar to bipp, but with sulphanilamide 5% in place of bismuth, was tried. The ulcer on the hand cleared up in about fourteen days, but that on the foot, although it became much smaller and cleaner, refused to heal completely, presumably because of the underlying osteitis. The second case was one of tuberculous adenitis, with cold abscess formation. This was opened, curetted, swabbed with 6% iodine, and sewn up. This procedure had proved successful in previous cases, but this one became secondarily infected and broke down. Fomentations were applied, and a surrounding crop of pustular eruptions developed. The whole area was treated with the sulphanilamide - iodoform paste, and it healed completely in seven days.

Following these two cases local chemotherapy was tried on a radical mastectomy wound that had become infected and had broken down, leaving a large suppurating area. The first application was a suspension of sulphanilamide 5% in 1 in 1,000 flavine, but it made very little impression on the infection. Since the predominating organism was a staphylococcus a paste of uleron 5%, with equal parts of zinc oxide and paraffin, was used. This cleaned up the wound sufficiently for a Thiersch graft to be made to close the defect.

A similar paste, with sulphanilamide in place of uleron, has been used on a large number of cases, of which the following are examples:

Case 1.—Infected burn over right eyebrow caused by molten aluminium. This had been treated by various applications for ten to twelve weeks without improvement. Daily dressings with the paste cleared it up in seven days.

Case 2.—A woman presented herself with a peculiar black eschar just above the right knee. This looked like a burn treated with tannic acid, but no history could be elicited. Fomentations were applied, and the eschar separated in fourteen days, leaving an ulcer resembling a syphilitic lesion. The Wassermann reaction was negative. The paste completely cleared up the area in seven days.

Case 3.—A case of osteomyelitis which had been operated upon had been in the wards for some time. The upper part of the wound had healed, but the lower part remained open and freely discharged. The paste cleaned it up, leaving healthy granulation tissue.

Several common lesions and small infected wounds have been successfully treated with the paste, and my colleagues at the hospital have used it on several occasions with equally satisfying results. Herpes vulgaris and impetigo seem to respond particularly well.

Following these cases an emulsion of sulphanilamide 5% in cod-liver oil was made up. This has been used as a routine dressing in the casualty department for the past three months, and no case of infection of primary suture of a wound has occurred. In addition, it is most useful where the cosmetic result is of importance. All wounds or incisions of the face and hands are sutured with gossamer silk and dressed daily with the emulsion. Sutures are removed in four to five days, and the wounds heal with only very faint scars. As a curative application the emulsion has surpassed the paste. An infected finger with necrosis of the phalanges was amputated at the metacarpophalangeal joint. The wound was dressed with glycerin and flavine, and when seen a week later it had broken down in three places, was discharging pus, and showed the sloughing end of an extensor tendon. The slough was removed and the wound treated with eusol dressings for five days. It was then clean, but the three sinuses were as large as ever. Sulphanilamide emulsion was used for the daily dressing, and the wound healed completely in ten days.

Several similar cases of grossly infected wounds have been treated with success. The following facts have emerged: (1) If there is free discharge of pus from the wound the emulsion or the paste is not very effective. If, however, the wound is treated with eusol dressings for a few days and then with the emulsion healing is rapid and permanent. (2) Resistant cases should be submitted to bacteriological examination, and the sulphonamide chosen to suit the infecting organism. (3) Many patients with infected burns have presented themselves. A large number had been treated elsewhere with tannic acid, and had arrived with the tan bathed in pus. In all such cases the burn was cleaned up, the coagulum removed, by eusol dressings if necessary, the surrounding skin painted with 1% gentian violet, and the emulsion applied daily. Healing takes place usually in ten to fourteen days. In no case have toxic symptoms appeared, although in several cases very large areas have been treated. It seems possible that the nature of the preparations used may be responsible for the absence of such manifestations.

The following preparations are in daily use at the hospital:

R Sulphanilamide powder 5%
Zinci oxid. .. .. } āa partes aeq.
Paraffin. liq. (sterile) .. .. .. }

Fiat pasta.

R Sulphanilamide powder 5%
Iodoform .. .. } āa partes aeq.
Paraffin. liq. (sterile) .. .. .. }

Fiat pasta.

(This is used chiefly for tuberculosis lesions, though it has been employed instead of bipp in a few cases of osteomyelitis.)

R Sulphanilamide powder .. .. gr. 175
Ol. morrhuae .. .. fl. oz. 4
Acid. oleic. .. .. m 36
Aq. calcis .. .. ad fl. oz. 8

Fiat emulsione.

I am indebted to the pharmacists of the hospital for their willing co-operation in making up the various preparations. I also wish to express my gratitude to Mr. J. Elgood, honorary surgeon to the hospital, for permission to publish these cases.

R. VERNON JONES, M.B., B.S.,
Newport, Mon. House-surgeon, Royal Gwent Hospital.

Dr. Norman Manson has been appointed warden in succession to Lieut.-Colonel Sir John Strathearn of the St. John Ophthalmic Hospital, Jerusalem, who has resigned owing to ill-health after holding the office of warden for twenty-two years.

Reviews

CANCER OF THE RECTUM

Carcinoma of the Rectum, with Special Reference to its Pathology and Treatment: Based on a Survey of Cases at St. Mark's Hospital during the Past Ten Years. By Lionel E. C. Norbury, C.B.E., M.B., B.S., F.R.C.S. (Pp. 66; illustrated. 7s. 6d.) London: H. K. Lewis and Co., Ltd. 1941.

Many will be grateful to Mr. Lionel Norbury for publishing his Hunterian Lecture on carcinoma of the rectum, because it was delivered in January of this year, when owing to war conditions many who would have liked to be present were not able to attend. Summarizing, as it does, present views on pathology and treatment held at St. Mark's and recording the author's experiences over the past ten years, this is a valuable and authoritative statement of what modern surgery has to offer for rectal cancer. Also included are the present views on pathology and method of spread of the disease, and something of diagnosis, management, and the history of various methods of surgical attack. Dealing with only adenocarcinoma or columnar-celled carcinoma, and excluding squamous cancer of the anal canal, Mr. Norbury finds that the disease is twice as common in men as in women, that the upper or recto-sigmoidal region is affected more often than the ampulla, and that the average age when surgical treatment is undertaken is 57. As a rule mucoid or colloid tumours are highly malignant.

In regard to treatment of rectal carcinoma, the author on the whole favours the radical one-stage perineo-abdominal excision with the patient in the Trendelenburg lithotomy position and with two surgeons working simultaneously, as has been practised by Devine in Melbourne and Kirschner in Germany. The perineo-abdominal operation appears to be as radical as the more widely practised abdomino-perineal operation and to produce less shock. He believes that conservative resection is occasionally justifiable and that operations such as those of Hartmann and Grey Turner have their place in treatment, but his general conclusion is that such operations are not often desirable, and he concludes with Ernest Miles that "there is no place for conservatism in the surgery of malignant disease." We would add, however, that in an early and high lesion there is occasionally a strong case for conservatism as the sphincters are thus preserved; particularly is this so since studies of the pathology, here referred to, have shown that downward spreading does not occur until there is a general choking of the spread in an upward direction—that is, until the lesion is rather advanced.

This little book is well illustrated with photographs, diagrams, and tables, and its great value consists in the fact that it is both authoritative and recent.

"THE RELATIVITY OF REALITY"

The Relativity of Reality. Reflections on the Limitations of Thought and the Genesis of the Need of Causality. By René Laforgue, M.D. Translated by Anne Jouard. Nervous and Mental Disease Monographs, No. 66. (Pp. 92. $2.50.) New York: Nervous and Mental Disease Publishing Company. 1940.

It is curious how often what looks like a discovery turns out to be only a re-formulation in new language of an ancient fact of observation. In this book René Laforgue postulates a "super-ego of the species," or a kind of conscience which is inborn and inherited in contrast to the acquired super-ego of parental introjection. What is this but the still small voice of God in new terminology? The main theme of the book, however, is that the scientific stage of intellectual development depends upon attainment of the genital stage of libido development. The "anal stage" is associated in psycho-analytic theory with projection and psychological animism, whereas the "genital stage" is concerned with relationships between people and objects generally, which is the essential stuff of scientific preoccupation. He describes accordingly an anal and a genital type of intellect, the former limited by failure to make contact with reality, so that it is very prone to develop anxiety; if reality forces itself upon it, magic is called in to redress the situation, and an overbearing attitude designed to reassure its owner is adopted. Hence the intellectual attitude of the anal stage is authoritarian and intolerant. Such people only argue; they cannot discuss. They are described as overbearing, vain, proud, conceited, and opinionated, and, unlike the people of genital attainment, are not co-operative. The genital ego, having overcome its fear of castration, no longer requires magic defences, and by appearing less strong is really stronger, since it is entirely its own master.

These formulations depend largely on a customary mode of psycho-analytic reasoning, which makes analogy very conclusive of identity. For example, the desire to know the why and the wherefore of things which is characteristic of the scientific attitude is considered to be the direct descendant of the earlier anxiety about relationships between the parents. These are all psycho-analytic ways of saying that intellectual maturity depends on libidinal maturity. In so far as the individual has fallen short of genital maturity he is held to be incapable of truly scientific thought, though he may be an intellectual concerned with thought processes and abstractions. But what in the light of these views—which are spun ingeniously for us without case records to support them, and which remain, therefore, airy conceptions founded on analogies—shall be said of the author's own inclinations for a scientific mode of thought?

PHOTOGRAPHY THE SERVANT OF SCIENCE

The Scientific Photographer. By A. S. C. Lawrence, Ph.D. (Pp. 180; 83 illustrations. 18s. net.) Cambridge: University Press. 1941.

The title of this excellent manual might lead one to suppose that it describes a special scientific photography for scientists. But it does nothing of the kind, and there is no such photography. The possibilities and limitations of photography are the same for the scientific worker as they are for the serious amateur. The camera itself is a scientific instrument, whether in the hands of a laboratory technician or a seaside snapshotter, and, as the author says, it demands respect "and sometimes intelligence." This is a treatise on photography as a serious pursuit, an engrossing one in itself, which demands for the purposes of scientific record a knowledge of the theory and an understanding technique.

Dr. Lawrence begins where most of the elementary text-books on photography leave off. He gives none of the instructions which may be purchased with photographic materials (except that he does include an appendix of useful formulae for solutions), but he discusses the underlying chemistry, the formation of the lens image, the mechanism of the camera, the rules of composition and perspective, and the processes of developing and printing. He adds a chapter on colour photography which gives in a dozen pages as succinct an account of that subject as any ordinary reader would desire. Finally he mentions a number of scientific applications, including the value to medicine of infra-red photography and photomicrography. He insists that photography is inadequately appreciated in the laboratory to-day, that full use is not made of it, that it is left to an amateur whose enthusiasm can be exploited when necessary; but when he goes on to say that no organized attempt has been made to use cinematography either for

research or for serious teaching, the recollection of many educational films we have seen flickers back again in silent reproach. The book is beautifully produced, as it deserves to be at the price, and the illustrations are none of them just thrown in to show what photography can do, but are necessary to elucidate the text.

Notes on Books

A pamphlet entitled *Discussion Groups for Citizens*, by Mrs. E. M. HUBBACK, has been issued by the Association for Education in Citizenship, 19, Wellgarth Road, London, N.W.11, price 7d. post free. An important quality required by citizens in a democratic community is that of good judgment, based on clear thinking, tolerance of the views of others, and a background of knowledge. One of the best means for encouraging such qualities is the discussion group, which makes a far greater call on the activities of its members than does passive listening to lectures or talks. This pamphlet describes briefly various forms of discussion groups; especially those which aim at bringing in the shy and inexperienced member, thus avoiding the weakness of so many groups where the talking is confined to two or three vociferous individuals. There are also short sections on practical activities which lend themselves to training for citizenship, such as drama—the producing of plays related to contemporary or historical affairs—mock trials, model parliament, social surveys, the uses of films. Nothing is suggested which has not been found to work well in practice. A valuable feature is a book list, on contemporary affairs, graded according to price, each section setting out pamphlets, Penguins, and other books under half a crown, which may be bought by all members of a group, and others over half a crown for consultation by leaders or speakers.

Mr. CHARLES KEOGH, F.R.C.S., has written a small pamphlet entitled *First Aid for Fighting Men* (Sifton, Praed and Co., Ltd.). The pamphlet is printed on four sides of stiff paper, which folds into a convenient shape for carrying in the pocket. The essential first-aid methods which can be applied by "the fighting man" are described in the briefest and simplest fashion under twenty numbered paragraphs. Each paragraph is introduced by a striking phrase printed in bold type, so that the first-aider can immediately find out what he wants to know without any trouble. The possession of this pamphlet by the men in the Forces would, we believe, save many disasters that otherwise would occur. We are informed that neither the publishers nor the author intend to make profit from the sale of the pamphlet, which is priced at 6d. for single copies.

Preparations and Appliances

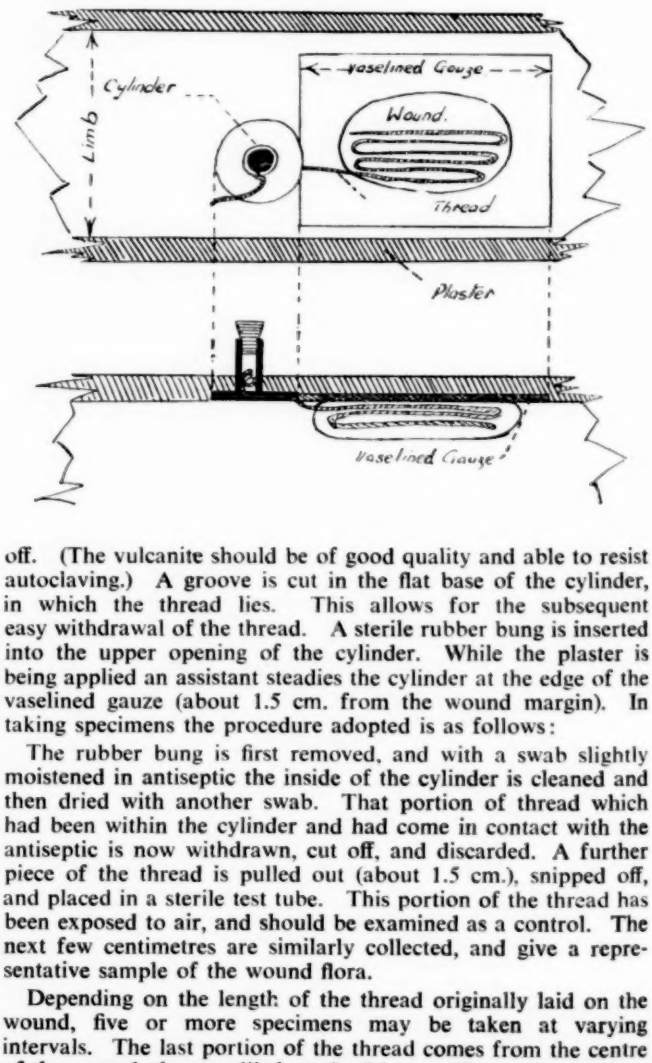
AN IMPROVED METHOD OF OBTAINING BACTERIOLOGICAL SPECIMENS FROM WOUNDS TREATED BY THE CLOSED-PLASTER METHOD

Dr. H. L. DE WAAL (Bacteriology Department, University of Edinburgh) writes:

In an article in this *Journal* (1941, **1**, 877) Orr-Ewing, Scott, and Gardner described an apparatus that allowed of access to such wounds. It consists of a "perspex" cylinder with a piston, and is incorporated in the plaster immediately above the wound. Specimens are taken by withdrawing the piston and collecting material from the exposed wound surface. A method similar in principle was used in our earlier investigations.

The main disadvantages in the use of such an apparatus are: (1) the inability to obtain a true representative specimen of the wound flora; (2) the danger of admitting extraneous bacteria to the wound; (3) the tendency for oedema to occur in that part of the wound directly beneath the cylinder base, and at a later date the formation of granulation tissue into the cylinder base, which tends to interfere with the flow of pus from other parts of the wound into the field of observation; (4), and perhaps most important of all, the fact that the wound surface at the base of the cylinder is aerobic or partly aerobic, whereas under plasters without windows the conditions may be totally different: it may be understood why the bacterial flora of the wound at the base of the cylinder differs but little from that of wounds treated without plaster. The following method has been devised to eliminate these disadvantages so far as is possible.

After the wound has been cleaned, sterile thick absorbent thread is laid backwards and forwards across its surface, starting at the centre and passing to the periphery. The free end of the thread lies away from the wound. The whole of the wound surface is now covered with sterile vaselined gauze. The free end of the thread is passed through a "one-piece" vulcanite cylinder with a flat base and with the sharp edges smoothed



off. (The vulcanite should be of good quality and able to resist autoclaving.) A groove is cut in the flat base of the cylinder, in which the thread lies. This allows for the subsequent easy withdrawal of the thread. A sterile rubber bung is inserted into the upper opening of the cylinder. While the plaster is being applied an assistant steadies the cylinder at the edge of the vaselined gauze (about 1.5 cm. from the wound margin). In taking specimens the procedure adopted is as follows:

The rubber bung is first removed, and with a swab slightly moistened in antiseptic the inside of the cylinder is cleaned and then dried with another swab. That portion of thread which had been within the cylinder and had come in contact with the antiseptic is now withdrawn, cut off, and discarded. A further piece of the thread is pulled out (about 1.5 cm.), snipped off, and placed in a sterile test tube. This portion of the thread has been exposed to air, and should be examined as a control. The next few centimetres are similarly collected, and give a representative sample of the wound flora.

Depending on the length of the thread originally laid on the wound, five or more specimens may be taken at varying intervals. The last portion of the thread comes from the centre of the wound, the part likely to heal last. After each specimen is taken a fresh sterile rubber bung is inserted in the mouth of the cylinder.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY AUGUST 23 1941

THE FUTURE OF MENTAL HEALTH

The future of medicine is a topical subject for debate at the present time, and the main headings under which it falls are the rearrangement of hospital services, the greater emphasis on preventive as opposed to curative medicine, and the more comprehensive and better-directed training of the medical practitioner. All three of these are dealt with in the report of the Mental Health Committee of the British Medical Association recently published in pamphlet form and summarized in the *Journal* to-day at page 276. The information and suggestions contained in it will unquestionably be of service to the Medical Planning Commission in its deliberations. Perhaps the most important conception that has been brought into prominence since the war is the regionalization of hospitals. The model scheme for the treatment of mental illness set out by the committee should lend itself admirably to the regional idea, for clearly the centres on which outlying clinics are based must not be too big, and they should be made to serve a well-organized area. For purposes of propaganda and education, for instructing the public and therefore avoiding much that is preventable in the field of mental illness, local organization will have obvious advantages, and thus "preventive" work is perhaps the most important task which must be undertaken by "mental medicine."

As with physical diseases the results of treatment of mental illness are not so satisfactory as any of us could wish, nor so brilliant as the enthusiasts would have us believe. This is well brought out in the report, but so also is the very large number of persons who require some sort of psychotherapeutic treatment, and both these considerations emphasize the need for prevention or at least for catching the patient young. An enormous amount of research and intelligent correlation of results is necessary in order to give us more knowledge and therefore better understanding of the nature and cause of mental illness; but here also a certain amount of decentralization, as is contemplated in the regional idea, will be beneficial, for too large accumulations of records simply become unwieldy and impossible of employment to advantage. The role of the voluntary organizations will continue to be an important one, for medicine alone cannot provide for mental health or indeed for any sort of health. Education and the social services are essential partners, and it is in assuring smooth co-operation between these three agencies that the voluntary organizations have their place. The committee responsible for the B.M.A. report is content to endorse the findings of the Feversham Committee, whose report on these voluntary organizations covered the ground very adequately, but it does insist on the proper education, qualification, and organization of the ancillary services which are so necessary in the general scheme.

Perhaps the most important problem of all is the provision of enough medical practitioners trained in mental medicine to deal with the large numbers of patients, both young and old, who require care and treatment, whether to restore them to full health, to ameliorate their inevitable invalidism, or to prevent them from doing harm to themselves or others. The report lays sufficient stress on the need for this, but also dwells on the difficulties that still beset its achievement. The treatment of mental illness is a long and complex matter demanding a wide knowledge of general medicine and very specialized skill in a particular field of therapy. But it seems that success in this treatment depends not only on knowledge which can be more or less readily acquired by anyone, but on a special type of personality of the doctor who practises this branch of medicine. Can such persons be picked out at the appropriate stage of their medical careers so that time and energy are not wasted in trying to train unsuitable persons? Having chosen the right person to train, is it a matter of general agreement how he should be trained and which of the many existing schools of psychotherapy he should be encouraged to espouse? When he has undergone a long and arduous course are there enough posts, full-time or, better, part-time, the emoluments of which will keep the wolf from his door while he builds up a practice in a branch of medicine still looked upon with a good deal of suspicion and prejudice? Unfortunately none of these questions can be answered now with a categorical affirmative.

In fine, the Mental Health Committee has collected and clearly set out much useful information, but in so doing it has perhaps emphasized the uncertainties and incompleteness of the subject of its reference rather than formulated any final conclusions. Nevertheless there can be no question that interest in, understanding of, and care for the mental patient have moved forward at a great pace since the beginning of the present century, and if this report is no final word on the subject it allows us to entertain not only a hope but a confident expectation that the difficulties that confront us to-day will eventually and before too long be surmounted. It is a commonplace that the last war gave a tremendous impetus to advance all along the medical front, and perhaps especially on the mental front. No one should doubt that after this war an even greater stride forward will be achieved; and perhaps, as a result of that progress, there will be no more war.

THE SOYA BEAN

We have it on the authority of the *Times* that after the Polish campaign Nazi official circles were boasting in Berlin that without soya food preparations it would not have been possible for the German Army to advance as quickly as it did. The Germans are undoubtedly making great use of the soya bean, and scientific articles published shortly before the outbreak of the war show clearly the important part it was expected to play in the food economy of the Reich as a source of protein and fat. Before being impressed into the service of total war, the soya bean had a long and honourable history

as one of the main foods of Oriental mankind for more than a hundred generations. It might be instructive to consider the nutritional background of its long-established eminence in Asia, its recent rise on the American continent, and its latest emergence in Europe in the service of Mars.

Glycine hispida, or *Soja max*, to give it its latest name, is a leguminous plant closely related to peas and beans. There are several hundred cultivated varieties, and the composition differs greatly according to the variety and to the conditions of growth. The outstanding nutritional characteristics of the bean are a very high protein and fat content, a large amount of mineral matter, and the almost complete absence of starch. In the Orient its chief uses are as a source of edible fat, as soya bean milk—a fine, stable emulsion of the bean constituents in water—as various cheese-like preparations, and in the form of sauce as a universal condiment. Most of these preparations are unlikely to appeal to the taste of the average European. The bean, as such, does not lend itself readily to cooking, which not only has to be very prolonged to give the necessary softness but in the absence of starch does not yield as satisfactory a product as peas and beans. A most valuable foodstuff can, however, be produced by subjecting the beans to some form of heat treatment, removing the hulls, and grinding the beans to a flour. If untreated the flour quickly becomes rancid, and, moreover, has an unpleasant "beany" taste. Many patents have been taken out for the preliminary treatment. They are largely modifications of the original procedure of Berczeller, in which the beans are treated with saturated steam for 10 to 15 minutes. Such flour has a sweet, pleasant, nut-like taste and may be kept at room temperature for months and even years without spoiling. It is in this basic form that the soya bean is being used in Germany and would doubtless be useful here. A consideration of the composition of the flour rather than of the whole bean is therefore indicated, but the flour has essentially the same composition as hull-free soya beans themselves.

The soya bean, and hence the flour, is outstandingly rich in protein, of which the latter contains some 40%. The protein is of good quality, at least equal to that of whole wheat and superior to the proteins of white flour and to those present in peas and ordinary beans. It is also easily digestible. It is generally agreed that the digestibility and biological value of the protein are improved by cooking. The content of fat, of which soya bean flour has some 20%—that is, much more than ordinary peas and beans, though less than peanuts—is also remarkable for this class of food. In consequence the calorific value of soya bean flour is high—about 470 calories per 100 grammes, as compared with 370 for white flour. The ash is exceptionally high, about 4.7%, or nearly ten times as much as in white flour and almost double that present in whole wheat, peas, and beans. Soya bean flour contains some 1.6% potassium, 0.14% sodium, 0.23% magnesium, and as much as 0.2% calcium (or ten times as much as in white flour). This large proportion of fixed base renders the ash strongly alkaline. The phosphorus amounts to some 0.6%; a large part of it is present as phytin phosphorus, and this may affect the availability of the soya bean calcium. The iron content is variable but high, from 6.7 to 30 mg. per 100 grammes. This can be compared with 1 mg. present in white flour and 3 mg. in wholemeal flour. Edible flours can also be obtained from the meal left after the removal of the soya bean oil. A press-cake flour still contains some 7% of fat, and the ash and protein contents are naturally higher than in high-fat flours. A product exceedingly high in protein is obtained by solvent extraction, but it is low in mineral matter, and such flour is of inferior value in human nutrition.

β-carotene is present in the soya bean, and a recent study showed fluctuations according to variety from 18 to 243 μg. per 100 grammes of air-dried beans. As by definition 0.6 μg. of β-carotene is the equivalent of one international unit of vitamin A, these amounts correspond on paper to 30 to 400 i.u. per 100 grammes; but it must be remembered that carotene is doubtless a less effective source of vitamin A activity for the human being than the preformed vitamin. In any case the carotene content of the soya bean is not very high when compared with green vegetables and carrots. The soya bean flour probably contains less. Moreover, in considering its value as a potential source of vitamin A, it is well to remember the curious observation of American workers that when fed to cows fresh or heated soya beans have a depressing effect on the transfer of vitamin A to milk. There is no vitamin D in the soya bean or flour, neither do they contain vitamin C. Vitamin B_1, however, is present in relatively large quantities, a recent reliable estimate giving nearly 5 i.u. per gramme of dry bean. This is more than that found in whole wheat (0.6 to 3.3 i.u.) and more than ten times the amount (0.3 i.u.) present in an average white flour. There is reason to believe that there is no serious loss of vitamin B_1 in the manufacture of the flour. The riboflavin content is also appreciable—1.6 μg. per gramme: that is, of the same order as in milk.

In the United States and on the Continent soya bean flour has been successfully used as an addition to wheat and rye flour in making bread, biscuits, cakes and pastries, macaroni and the like, as a constituent of soups and various prepared foods, and as a filling for sausages. The valuable nutritive properties of the bean could undoubtedly be put to good use in this country. Included in "blitz soups," provided in communal feeding centres, it would contribute its useful quota of fat, protein, and minerals, and form a desirable addition to our wartime dietaries. There is every reason for a serious consideration by responsible quarters of the importation on a substantial scale of this compact foodstuff.

TRAUMATIC LESIONS OF THE HEART

But little attention has been paid to the possibility of injury to the heart after non-penetrating trauma to the chest. Evidence of such injury is especially apt to be missed if there is a long latent period between the injury and the appearance of cardiac signs and symptoms. The chest wall is elastic, particularly in the young, so that when it is compressed the heart is squeezed and in severe cases ruptured. Short of this, pericardial and local myocardial lesions of

various kinds have been described. Rupture of a cusp of the normal aortic valve as the result of extreme muscular effort must also be included under the heading of traumatic cardiac lesions, although here the trauma is indirect: such an event is rare, but there is no doubt that it occurs. E. Warburg, who reviewed 202 cases of traumatic injury in a special monograph,[1] has recently[2] added a further fifty-nine. Pericarditis, either dry or with serous or haemorrhagic effusion, was a not uncommon sequel to injury. When lung tissue and the pericardium are torn air may enter the latter, and fluid in the sac may then produce a splashing sound as in hydropneumothorax. Traumatic pericarditis usually requires no local treatment unless infection occurs; the prognosis is good. Various disturbances of cardiac rhythm have been noted after trauma, especially auricular fibrillation, which Warburg found in one-fifth of all cases. Heart-block occasionally happens and, if discovered in a young subject, may be wrongly diagnosed as congenital. A few cases of angina pectoris, including infarction angina, have been recorded—mostly in older subjects (probably with atheromatous coronary arteries), but also, rarely, in the young. Partial rupture of the ventricular wall may be followed by aneurysm and complete rupture, this complication being most likely to arise about two weeks after the initial injury, as in myocardial infarction. In any case in which such an injury is possible absolute rest is essential. Changes in the electrocardiogram may confirm the diagnosis of traumatic cardiac lesions, as illustrated by a case reported by R. G. Anderson.[3] A man of 30 was trampled on by a horse and suffered shock and pain in the chest. R—ST and T changes in electrocardiograms indicated focal myocardial injury; they developed over a period of one year in a manner comparable to the changes of cardiac infarction. Special attention to the heart in cases of recent injury to the chest, and inquiry as to trauma in the history of heart lesions of doubtful aetiology, may show that traumatic lesions of the type described are less rare than has been supposed.

HOME CARE FOR RHEUMATIC CHILDREN

It is now accepted by public health authorities in this country that children with rheumatic heart disease need prolonged convalescence in special "heart homes" if this can be arranged. Unfortunately there are not, even in peacetime, nearly enough of these homes, and there are certain disadvantages in keeping children in institutions for periods running into months. Recent reports from Boston[1] on this problem, solved there with apparent success by supervised convalescence in foster-homes or in the child's own home, will therefore be received with interest by those who are concerned with the care of rheumatic children in this country. Dr. Paul D. White, in an introductory article, describes how the method was evolved out of the work of the Children's Cardiac Clinic of the Massachusetts General Hospital. Various other bodies co-operated, and from 1934 to 1939 a special study was made of a group of sixty-four children between the ages of 5 and 15 years who had been recommended for convalescent care from the wards or clinics of the Massachusetts Hospital. Whether home or foster-home care was preferable depended upon the home conditions and the severity of the disease. Dr. E. F. Bland explains that many factors, some only remotely related to the patient's illness, had to be taken into account when deciding where the child was to convalesce. Throughout the study the tendency was to advocate bed-care at home when it seemed at all feasible. Foster-home facilities were reserved for those children needing more expert supervision and nursing care than they could have received in their own homes. Medical-social workers have kept in constant touch with each patient; all the children were visited at monthly intervals by the physician in charge, and in special cases more often. The assistance of community-health nurses was invaluable in following the progress of patients more seriously ill. After the project was started it became evident that for the intelligent management of the patient certain minimal laboratory guides (such as the sedimentation rate) were necessary, and arrangements were made for a part-time technician to perform the tests, if necessary in the children's own homes. Miss Edith M. Terry outlines the various medical-social methods employed and the resources available for the children. These include educational aids by home teaching, tutoring by college students, recreational facilities provided through an ingenious "In-Bed Club," and occupational therapy. Further details of the social workers' essential part in the scheme are supplied by Miss Virginia B. Ebert, who points out how essential it is to get a clear idea of the environmental influences in the patient's illness, so that parents and patients may be properly guided and enabled to make the necessary adjustments. The results noted are compared with those obtained from a large group of children who spent their convalescent period in a special home—the House of the Good Samaritan, Boston. It was clear, after allowance had been made for a high proportion of seriously ill children in the institution group, that over the five-year period there was very little difference in the proportion who developed heart disease. The cost of convalescence in foster-homes was, however, a little over half the cost in the special home, and only about a quarter of the daily cost of keeping a child in bed at the Massachusetts General Hospital. It is also pointed out that home or foster-home convalescence probably offers less exposure to respiratory infections; thus there are likely to be fewer recrudescences of rheumatic activity than in a large institution. The social and economic advantages of home and foster-home care of rheumatic children are obvious. The Boston experiment has shown that on medical grounds such children are at no disadvantage compared with those in special institutions. No complete answer to Dr. Paul White's question—"Is all this worth while?"—is yet available. More time must pass before ultimate effects upon mortality and morbidity can be assessed. Meanwhile, for those health authorities in this country who have no special "heart home" or similar institutions available, the Boston work indicates a clear line of approach to the problem.

TREATMENT OF TUBERCULOSIS BY ARREST OF LUNG MOVEMENT

Several factors, including restricted movement of the lung, may contribute toward the good effects of pneumothorax therapy. Nevertheless a considerable excursion of the collapsed lung continues to take place with each respiratory cycle. Complete arrest of such movement with retention of function is, however, no longer merely a therapeutist's flight of fancy. Alvan L. Barach has recently described[1] the mechanism of alternating-pressure respiration. He has shown that in patients with pulmonary disease treated in a

[1] *Subacute and Chronic Pericardial and Myocardial Lesions due to Non-penetrating Traumatic Injuries*, Copenhagen and London, 1938.
[2] *Brit. Heart J.*, 1940, **2**, 271.
[3] *British Medical Journal*, 1940, **2**, 307.
[4] *New Engl. J. Med.*, 1941, **224**, 627, 629, 632, 639.

[1] *Amer. Rev. Tuberc.*, 1940, **42**, 586.

chamber by an alternating pressure of ±55 mm. Hg twenty-five times a minute, as originally suggested by Thunberg[2] for respiratory paralysis, continuous arrest of lung movement could not be maintained. Moreover, compression and expansion of the chest resulted from the positive and negative cycles of pressure. The failure to arrest lung movement was found to be due mainly to the resistance interposed by the tracheobronchial tree to the passage of air in and out of the lung. By artificially creating a like resistance to the air pressure applied to the chest wall, the pressure on the inner and outer surface of the thorax as well as the pressure on the upper and lower surfaces of the diaphragm were made approximately equal. Adequate ventilation of the lungs then occurred without voluntary breathing and without discernible movement of the ribs and diaphragm. The apparatus employed[3] was called an equalizing alternating pressure chamber; an equalizing pressure of between 5 and 6 cm. of water was found most satisfactory. Barach now reports[4] on the treatment by this method at the Presbyterian Hospital, New York, of five patients with advanced bilateral pulmonary tuberculosis. These patients, after a previous control period of bed rest, were considered unsuitable for any type of collapse therapy. The procedure was found feasible in all of them. One, after failure of a pneumothorax subsequent to the treatment, wished to return; another was glad to come back for a second course. "Despite intermittent boredom with the routine, the co-operation which these ward patients gave was an indication of the practicability of the method." The first patient was treated for two months for about six hours a day; the others were exposed to the local lung rest for twelve or thirteen hours daily, being taken out of the chamber for lunch, dinner, and for milk and orange juice at 4 p.m. The duration of the treatment was arbitrarily set at three months. Complete healing was not expected to take place in this length of time, but it was hoped that a recovery process might be initiated which would then continue with ordinary rest in bed. The detailed case histories leave no doubt about the beneficial effect of the treatment on four of the patients. Moreover, in one of them there was resolution of an extensive tuberculous process characterized by honeycombing in both lungs. The sputum has remained negative for a year, and he is now doing part-time work which calls for mild physical activity. In another patient, who had had a cavity for ten years, there was both clinical and radiological improvement. His sputum and, later, gastric contents have remained negative for two months after discharge. The results of the application of this method in less advanced cases of pulmonary tuberculosis will be eagerly awaited. But as the originator of the method himself stresses: "It should be understood that subsequent treatment must still utilize the measures known to be of value in pulmonary tuberculosis."

[2] *Skandinav. Arch. Physiol.*, 1926, **48**, 80.
[3] *Amer. Rev. Tuberc.*, 1941, **43**, 91.
[4] Ibid., 1941, **43**, 56.

THE ROTUNDA TO-DAY

The Rotunda of Dublin is one of our most renowned maternity hospitals, and its long record of distinguished service has been surpassed by none. Like many another it had been growing structurally decrepit for many years, but its work was continually inspired by the love of progress and by the spirit of youth throughout the long series of live and able Masters who have guided its activities. And now a turn of the winged wheel of fortune—or its modern unromantic equivalent, the lottery drum—has furnished it with an environment worthy of its undaunted spirit. In other words, the Rotunda has been rebuilt and reconditioned by means of an allocation of £160,000 received from the Irish Hospitals Sweepstakes Fund. In this island the intangible force which is described (often inaccurately) as "public opinion" has been opposed to the device of enlisting the average man's love of "taking a chance" in the service of charitable institutions, even of those which are of proven value. It is, however, quite possible that treasurers of hospitals, glooming over empty coffers, would willingly exchange the glow of moral and financial rectitude, which they are entitled to enjoy if they can, for the spate of sterling which has submerged the overdrafts of many of the hospitals of the neighbouring island. No one, we feel sure, will be disposed to cavil at the good fortune which has befallen the Rotunda, for it has enabled that hospital to provide a new nurses' home and students' quarters, new sterilizing, radiological, and operating equipment, and to redecorate and recondition the old buildings. In addition to all this a Social Service Department has been set up which has made a promising start and should do valuable work in developing those intimate personal relations that should exist between a voluntary hospital and the people of the district it serves. A notable feature of the accounts of nearly all voluntary hospitals is the annual deficit. This phenomenon, while it may vary in size, recurs with the utmost regularity and is generally regarded with equanimity by boards of management. For certain purposes the deficit has come to be viewed as an asset and accorded a measure of publicity rather than relegated to the proverbial cupboard. When the time is judged to be ripe for launching the periodical appeal for money the size of the deficit becomes a "bull-point" in its favour, and there may even appear a tendency for one hospital to vie with another in parading financial stringency. From these somewhat undignified devices, which are regretted by many friends of voluntary hospitals, the Rotunda of Dublin is saved, for the annual deficit is regularly liquidated by another turn of the lottery handle. Under such conditions financing a hospital must lack the thrill which approach to the verge of bankruptcy produces in the minds of persons accustomed to pay their way. Substantially, however, the Rotunda and other hospitals in similar case are gainers, for their work is not hampered by inability to meet the rapidly increasing cost of caring for the sick in accordance with changing therapeutic and surgical methods. The Rotunda report for 1940, written by the retiring Master, Dr. Andrew H. Davidson, tells a tale of progress which is truly remarkable and well deserves public attention. During his seven years' term of office the number of deliveries in hospital increased by 40%, and the proportion of patients who received ante-natal care rose from 44% to 79% in the same period. It is not to be supposed that the lure of a modernized hospital was the sole cause of this remarkable advance, and full credit will be given to the outgoing Master and his assistants for the high level of efficiency which characterized their work.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* are now ready. They will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

A SURVEY OF WAR SURGERY*

BY

L. R. BROSTER, D.M., M.Ch., F.R.C.S.

Surgeon to Charing Cross Hospital

The principles of surgery are continually being enriched by new methods which stand the test of time, but in wartime fresh problems are imposed with such insistence as to demand immediate attention, and often hasty improvisation. It has been delightful to see the enthusiastic reception which has greeted the presentation of our difficulties and the genuine desire to get to work on their solution which has been displayed by the profession both in the United States of America and in Canada. At the outset it may be said that the surgical principles laid down as a result of the last war have stood the test of time, and have remained the sheet-anchor of present procedures; but before surgery can be established on a satisfactory basis it is necessary to consider some of the points in its organization.

Medical Organization

The medical organization for this war has been devised on lines different from those of the last. The policy adopted has been the formation of the Emergency Medical Service for the whole country under the Ministry of Health. Hospitals have been decentralized and re-created as sector hospitals in the countryside, and are responsible for the treatment of sick and wounded, both civil and military, although the existing Service hospitals have carried on as usual. Many of these outlying hospitals have been converted into "special hospitals," such as centres for head injuries, chest injuries, plastic surgery, and orthopaedic surgery. Before the war actually started the medical profession had been voluntarily conscripted. This work was undertaken by the British Medical Association. Every member was card-indexed and his wishes for service consulted, with the result that the Central Medical War Committee is able to satisfy from this pool any demand by the State in the way of personnel in any direction. The staffs of the voluntary and larger city hospitals have been used in manning the outlying sector hospitals. Apart from the inconveniences and the dislocation caused by the migration of large numbers of town folk to the countryside, the health of the population, in spite of rationing and overcrowding in shelters, has remained very good, and we have been free from epidemics. One of the anomalies has been that the health of the children who have remained at home has been better than that of those who have been evacuated. Although such a system has its limitations, as a wartime measure which has now become established it is running fairly smoothly and efficiently.

War Wounds

Early and free surgical excision still remains the basic, and most satisfactory, procedure in the treatment of all war wounds, and although the open Carrel-Dakin method is occasionally employed, the most important change has been the adoption of the closed-plaster method of Winnett Orr and Trueta and the use of drugs of the sulphonamide group for combating infection. The consensus of surgical opinion is that the combination of excision, closed plaster, and sulphonamides has proved a great advance in the treatment of war wounds.

Where this method has been used, as at Dunkirk, the wounded have arrived back in good condition and the wounds have been clean. It gives the maximum of comfort and eliminates many of the difficulties of transport. Morale is high, and there is practically none of that distressing condition of "shell-shock" which was so prevalent among the wounded from the trenches during the last war. There is no doubt that the closed-plaster method is a boon to the patient; it gives comfort and rest, and eliminates the dread of the painful daily dressings of the open method. Its greatest objection is the obnoxious smell. However, it requires constant supervision, for on the appearance of a raised pulse or temperature, pain, sleeplessness, loss of appetite, oedema, or coldness of the toes, the plaster should be removed. Where this close observation has not been possible some cases have arrived with spreading infection, sometimes anaerobic, and gangrene beneath the plaster. Under such conditions some surgeons prefer to transport their patients with a peeping window cut in the plaster over the wound, or, if the distances are short, to dispense with it altogether—as in such cases as fractures of the lower limb, in which the Thomas splint with traction has again proved its value.

With regard to sulphonamides, these can be employed in two ways—prophylactically, or locally into the wounds: by mouth, starting with 2 grammes followed by 1 gramme four-hourly up to a total of 20 grammes, or by direct insufflation into the wound in doses varying from 5 to 20 grammes. Experience has confirmed that more satisfactory results are obtained with local application. The chief aim is to get the wounded to the nearest surgical unit within twelve hours, and in these days of mechanized and aerial transport this ideal should be increasingly realized. In hospital the primary considerations are the arrest of haemorrhage and the treatment of shock, whether primary or secondary. It is only then that excision should be carried out. This requires the removal, not too wide, of skin, all devitalized muscle and fascia, and detached fragments of bone and foreign material, so as to obtain a saucer-like wound, which is the most satisfactory for drainage. The more urgent call for early excision is in wounds of entry into fleshy parts with retained missile. In multiple wounds the larger ones only need be excised, as also those wounds complicated by fractures or involvement of joints. Although primary suture of the larger wounds after the application of sulphonamides may be carried out within twelve hours, the general impression is against this procedure. On the other hand, some surgeons have reported success from primary suture in wounds two to three days old, but as infection has already taken place in these late cases formal excision is not indicated: the wound should be opened to provide free drainage, necrotic muscle and retained missiles removed, sulphanilamide introduced, the wound covered with vaselined gauze, and the limb encased in plaster or splinted. When infection has been overcome secondary suture can be undertaken.

Bomb Injuries

Fortunately the number of wounded has not come up to expectation; a higher proportion are mortal, however, and this is reflected in the low percentage of survivals from abdominal and chest wounds in comparison with the more numerous wounds involving the limbs. There is not so much of that extensive ploughing up of the tissues from high explosive and shrapnel as in the last war, for the modern bomb is more destructive than maiming. Its casing is comparatively thin, and its terrific blast breaks this up into numerous small hot fragments which spread out fanwise in a more or less horizontal direction with low trajectory. Wounding is more common from the secondary effects of the blast, either from shattered glass or from falling masonry. Consequently we may stigmatize this war of aerial bombardment as one of multiple injuries and

* The basis of an address delivered by invitation to the American Surgical Association, at their Annual Meeting at White Sulphur Springs, West Virginia, May 29, 1941.

marked traumatic shock. It is often difficult, therefore, to determine which of these small multiple injuries involve the more important structures, such as vessels, nerves, and viscera; and they cannot be dismissed by their apparent triviality, for severe venous thrombosis may follow from infection driven into superficial veins, and nerve injuries in particular are apt to be overlooked.

Regional Injuries

It is impossible in a short paper of this kind to enter fully into the injuries of the different parts of the body, so a brief summary of the most salient points must suffice.

Head.—Four principles of general application may be cited here: (1) Remove infective material and dead brain tissue. (2) Remove blood clot, extradural or subdural, and aerocele. (3) Consider whether a retained foreign body should be removed on account of traumatic epilepsy. (4) There is a definite impression that the sulphonamides tend not only to localize infection but to delay the necessity for operation: this is therefore a hint towards the adoption of more conservative methods. The most important fact to be established is whether the dura has been penetrated or not, and every means should be employed to this end. When the dura is opened damage to nervous pathways, spread of infection to the ventricles and basal cisterna, later abscess, and epilepsy must be borne in mind. The dural wound should not be enlarged unless the surgeon is prepared to remove necrotic brain and clot to prevent tension, otherwise fungus of the brain will develop. Forcible irrigation and suction should be used for this, and at the same time all dirt, foreign bodies, and detached bone must be removed. Repair of the dura is unsafe, and tension should be controlled by repeated lumbar puncture. Retained missiles should be left alone, but if the clinical signs spread and the cerebrospinal protein content increases, bold measures for their removal should be undertaken. Compared with civil injuries, concussion is usually slight, but unconsciousness may occur late and be prolonged. Focal symptoms are frequent: they tend to recover, and operation is indicated only when they come on late.

Abdomen.—The mortality rate from abdominal wounds is high, and the principles of treatment remain fundamentally the same as during the last war. All undoubted peritoneal wounds must be operated on, and the mortality depends largely upon how soon this is achieved. Essentials for success are accurate localization of the missile, local patching instead of resections, and end-to-end anastomosis for preference, control of bleeding, cleaning out of the peritoneal cavity, and—rarely—drainage, except in late cases, and then suprapubically. Time and speed, too, are essential. Multiple ileostomies are of no value, but caecostomy may prove a useful outlet for distension. Sulphanilamide dusted on the suture line, and 5% of this powder, given with saline, into the peritoneal cavity, is a procedure that has been recommended by some surgeons. It is gratifying to hear that retroperitoneal haematoma, so fatal in the last war, has shown some recoveries with chemotherapy. Wounds of the liver, spleen, kidneys, and bladder should be treated on conservative lines. Abdomino-thoracic wounds, whether approached from the abdomen, thorax, or both, should ensure repair of the diaphragm. Late cases of peritonitis in which there is reasonable evidence of involvement of the bowel should be operated upon.

Chest.—Like wounds of the abdomen, chest wounds are of low incidence and high mortality. It is probable that a large number of these cases do not reach base hospitals. Operative intervention for haemorrhage from the parietes or lung should be undertaken at once. Open pneumothorax is the bugbear of these sucking wounds, and must be stopped up at once by vaselined gauze dressings and strapped. Pressure pneumothorax can be gauged by trachea deviation radiologically and relieved by needling. Repeated aspiration should be performed for haemothorax, and, if infected, rib resection with closed drainage. Foreign bodies, unless large and in the dangerous area of the hilum of the lung and pericardium, are better left alone. For shock and loss of blood, plasma and whole blood are given in large quantities, up to 5 to 6 pints, the aim being to maintain the haemoglobin at about 80%. Oxygen given by the B.L.B. mask is invaluable. Local application of sulphanilamide into the wound is good, but the results of employing it in the pleural sac are as yet inconclusive.

Chemotherapy for War Wounds

Perhaps the most fascinating aspect of the treatment of modern war wounds is the advent of chemotherapy as an adjunct to surgery. Though the use of these sulphur compounds must still be regarded as in the experimental stage, there is a general consensus of opinion that where they have been employed wounds are less heavily infected and in a healthier state than corresponding wounds in the last war. Much experimental work has been done with sulphanilamide, sulphapyridine, and sulphathiazole. Colebrook considers that local application is superior to the oral route, and has higher expectations from the use of sulphadiazine. Fleming prefers sulphathiazole. The effects of these drugs have been most notable in the streptococcal infections, especially in the cleaning up of late wounds. The anaerobe group as a whole is less susceptible to their action, but it is fortunate that *B. welchii* is more susceptible than the other members of this group. Antitoxic sera have also given protection against these infections, but at the moment no comparative results, or results from combined sulphur and toxin prophylaxis, are available. It is considered that these substances, of varying solubility, act direct on bacteria and arrest their metabolism.

Burns

One of the curses of the internal combustion engine is the risk of burns, and the war has acutely accentuated the importance of this problem, which calls so much for teamwork and treatment from different points of view. The tannic-acid method, devised by Davidson of Detroit in 1925, so successful before the war, led to neglect in the study of some of its pathological problems. War burns present special difficulties of their own, in which the primary objects are to save life and limb and to preserve function. The main cause of dissatisfaction with the tannic-acid treatment is that in the commonest types of burns—i.e., those involving the face and hands of airmen—it has led to severe scarring and to gangrene of the fingers. There has followed a great deal of ingenuity in trying out new methods of treatment, but as yet no unanimity of opinion as to their respective values has been arrived at. They may be summarized as follows:

1. The Triple-dye Method.—This, consisting of gentian-violet 2%, brilliant green 1%, acriflavine 0.1%, is recommended by Rear-Admiral Wakeley, who claims that when sprayed on the burn it produces less scarring than tannic acid.

2. The Bunyan Bag.—In this method the burnt surface is isolated in a special watertight envelope, and is irrigated with electrolytic sodium hypochlorite solution (5% milton).

3. The Edinburgh school recommends the application of sulphanilamide and glycerin.

4. Saline baths.

If tannic acid has been found unsatisfactory for certain forms of burns it must not be concluded that it should be discontinued. Outside the areas of the extremities and

flexures it still has firm and ardent advocates, and is considered by many the best form of treatment when applied over a burn dusted with sulphanilamide. Whatever method is decided upon, the burnt area should be thoroughly cleaned with saline and dried with hot air. For this purpose gas-and-oxygen, evipan, and pentothal are the most satisfactory forms of anaesthesia. When the tan falls off in the course of a few weeks the part should be rubbed with lanolin, and any cracks in it can be dusted with sulphanilamide. Tanning has reduced streptococcal infection, but where this is present in late cases the tan should be removed and saline baths given. From the point of view of the plastic surgeon, the school led by Gillies insist that such treatment is satisfactory only for burns of the first and second degrees. For burns of the third degree they recommend surgical excision of the burn, saline baths, and Thiersch grafting as soon as a satisfactory granulating surface has been obtained. By these means unnecessary scarring and deformity are avoided.

Apart from the treatment of the actual burn, it is in dealing with its complications that work is so desirable. Primary shock has a mortality rate of 2% to 3%, whereas secondary shock, which comes on later, has a danger-point during the subsequent twenty-four to forty-eight hours, with mortality as high as 60%. Unless there has been concomitant haemorrhage, blood transfusion is not indicated owing to the concentration of the blood which occurs, and blood plasma must be given to replace protein loss and prevent oedema.

Blast Injuries

The highly explosive force due to the sudden conversion into gases of solid material under great pressure within the modern bomb has given rise to a series of phenomena which have come to be known as "blast injuries." Blast has shown curious anomalies in its direction, distribution, and force. It is probable that these are due to the breaking of the casing at its weakest point and to the waves of pressure being ricochetted or reflected by buildings in the vicinity of the explosion. The effects of blast on animals have been studied by Zuckerman. A wave of high-positive-pressure velocity is created, and this is followed by another of negative decreased velocity exerting a suction-like action. The high-pressure wave falls to atmospheric pressure over a distance of some thirty feet, but proximity to the actual blast does not necessarily determine its effects upon its victims. Usually it gives rise to no surface injury, and is characterized by blood-stained froth at the mouth, which may appear sooner or later, but within ten days. Clinical examination of the chest reveals the signs of pneumonia. Necropsy discloses haemorrhage of varying extent in the substance of the lungs. Similar haemorrhages may also be found in the liver, spleen, intestines, adrenals, kidneys, bladder, and, seldom, the brain. The force of the blast may hurl people against objects and so give rise to secondary injuries, which may cause the blast injury to be overlooked. Fat embolism is also sometimes found at necropsy.

From the surgical point of view these patients give rise to much anxiety. Like pleurisy, the chest condition is often associated with rigidity of the abdomen, and yet due regard must be paid to the possibility of a concomitant intra-abdominal lesion, while in either case inhalation anaesthesia is best avoided.

Crush Injuries

Different methods of warfare either bring new problems or revive old ones in new disguise, and the crush syndrome may well fall into either category. It is characterized by acute renal failure supervening in people who have been pinned down by fallen masonry and have been buried and subjected to pressure for a varying period. There may be no evidence of any local injury, but, when there is injury, local swelling, oedema, whealing followed by bullous eruption, and patchy areas of anaesthesia appear. A few hours later, in spite of vasoconstriction as shown by pallor, coldness, and sweating, the blood pressure falls and haemoconcentration rises. Later the urinary output diminishes, and albumin and dark brown clots appear in the urine. The patient becomes alternately alert and drowsy, and his blood pressure often rises. Oedema, vomiting, and thirst supervene, the blood urea and potassium become increasingly high, and death takes place about the seventh day. Post-mortem examination shows necrosis of muscle, and cloudy swelling and degeneration of the renal tubules.

Shock

"Shell-shock" to those who knew it during the last war has taken a holiday, and has been replaced by traumatic shock of varying and severe degree; for, apart from wounds, it is a handmaiden to burns, blast, and crush injuries. There is little new to add to the question of shock; but from the observation of cases of uncomplicated shock at Charing Cross Hospital the following points may be stressed. The mental state of the patients, all of whom had received morphine, was quiet and still; very few of them were excited. In general they were pale, dry-skinned, and thirsty; one patient sweated profusely. Some had nausea and vomiting. The pulse was never above 100; its quality varied, being thin, impalpable, or collapsing. In all cases the blood pressure was below 100. A rise of 10 points in blood pressure, and improved temperature and colour and mental state, were taken as indications to warrant surgical intervention. As a rule the need for transfusion was in proportion to the severity of the injuries. Plasma was given, and whole blood if haemorrhage had occurred. In severe shock transfusion may be difficult owing to the collapsed condition of the veins, and local warming of the arm has proved helpful in getting the blood in satisfactorily. The organization of the blood transfusion service has been one of the main successes of our hospital system, and the prompt access to reserves of stored blood has been most helpful and has resulted in the saving of many lives.

HEALTH PROBLEMS IN HONG KONG

According to the report for 1939 of the Director of Medical Services, Hong Kong, the large numbers of Chinese refugees from the neighbouring Sino-Japanese conflict continue to constitute the colony's chief health problem. In July, 1939, the number of persons entering the colony exceeded the number leaving by 327,833. Many of the immigrants are destitute, ill nourished, and diseased, and the overcrowded conditions in which they live are, after malnutrition, the most serious menace to public health. A deputy director of health services was appointed at the end of 1939, and the sanitary inspectorate has been transferred to the direct control of the health officers, so that the much-needed organization of the health services of the colony can now take place. Diseases of the respiratory system (non-tuberculous) caused the largest number of deaths in 1939. Tuberculosis came second, as in 1938, the pulmonary form of the disease being responsible for the majority of the deaths. A blood survey of 1,500 refugees showed a malarial infection of 24%. There were over 9,000 cases of beriberi, 800 cases of cholera, and 3,000 of influenza in Hong Kong during the year under review. In no other part of the British Empire is there more need for active sanitary measures, and, as the report shows, it is only by persistent vigilance that the D.M.S. (Dr. Selwyn Clarke) and his large staff can cope with the problem of maintaining a reasonable standard of public health among the 1,500,000 British and Chinese inhabitants of the colony.

PLANNING FOR MENTAL HEALTH

REPORT OF B.M.A. COMMITTEE

Three years ago the Council of the British Medical Association set up a committee to inquire into the present medical equipment and provision for dealing with mental health, with special reference to the treatment and prophylaxis of psychoneurotic and allied disorders. The chairman of the committee was Colonel R. G. Gordon, M.D., of Bath, and its twenty-two members included a nominee of the Royal Medico-Psychological Association and of the Society of Medical Officers of Health. As an example of the thoroughness with which the subject has been surveyed, 170 persons, organizations, or institutions were drawn upon for evidence or for information furnished in other ways. The committee had virtually completed its work before the outbreak of war; only the consideration of its report remained, and it was thought well to finish this. It has now been published as a B.M.A. "Grey Book" of fifty pages. So far from having been rendered untimely by the war, it derives a new interest on that account, and it will be of first importance to the Medical Planning Commission.

It may be recalled that at the Annual Representative Meeting at Aberdeen two years ago this same Mental Health Committee brought forward certain advance recommendations regarding the "non-medical psychotherapist," setting out the conditions under which he might undertake treatment and those under which a medical practitioner might recommend a patient to him, and calling for a two-years training of such lay people on the basis of an agreed curriculum. After an interesting debate[1] the objections to the recognition of lay psychotherapists prevailed, and the recommendations were turned down. In its report the committee now only makes the comment that if no non-medical psychotherapists are to be recognized by the medical profession it becomes all the more urgent to train enough medical psychotherapists to cope with the demand.[2]

The Dimensions of the Problem

The inquiry of the committee was chiefly directed to the psychoneuroses, but it could not leave the psychotic cases out of its consideration, nor, on the other hand, could mental deficiency be omitted from any discussion of mental illness, and the same applies to many cases of drug addiction and to epileptic manifestations. The committee found it impossible to define exactly any criterion of mental illness. "It would seem that at present one must depend chiefly on the manifestation of symptoms rather than on more scientific criteria in diagnosing such disorder." Equally, mental illness cannot be divorced from physical illness. In all illness there are psychic and somatic components which must be considered in relation to each other.

The incidence of mental illness is difficult to ascertain. In 1938 there were 158,723 persons suffering from mental disorder notified as under care in England and Wales, and 89,904 mentally defective persons in institutions and under statutory supervision. But the group with which the committee is more concerned is that of persons suffering from mental illness who have not been certified. In many parts of the country there is no one in private or hospital practice to care for such patients. The committee does not seem to have been much helped by its witnesses in this assessment. One witness declared that quite 60% of the population were psychoneurotic; another that while the number of psychoneurotics was larger than generally supposed, the difficulties of many of them were negligible and could be cleared up in a single interview; while another spoke of the "danger that we may fall into a new fashion of medicine where almost every ill will be attributed to mental factors." The attempt to obtain records of the incidence of psychoneurosis from general practitioners who were known to be interested in the subject did not yield anything of statistical value, but a number of experiences are quoted from clinics and departments. The most informative figures are those for nervous debility and neurasthenia and neurosis in the returns of the Department of Health for Scotland of incapacitating sickness in the insured population, but even these do not show the whole number, for many cases are likely to be included under such headings as anaemia, gastritis, and rheumatism. As for the incidence of psychoneurosis in industrial injuries, the number of compensation cases in the seven great industries in Great Britain is just under 500,000 a year, and if only 2% showed psychoneurosis it would mean 10,000 cases.

The committee concludes that the incidence of mental illness is much greater than can be met by present facilities for treatment, that in any group of sick persons something like 30% will be found suffering from conditions about which it would be helpful to have psychiatric advice if not treatment, that it is important that they should be dealt with by persons well trained in psychological medicine, and that therefore the number of doctors with such training (at present an inadequate number) should be much increased.

The causes of mental illness are grouped under the headings of: (1) hereditary and constitutional; (2) environmental emotional factors in early life; (3) similar factors at the time of the illness. Hereditary and constitutional factors are causal in many cases of mental deficiency and important in the non-organic psychoses, especially in the manic-depressive group, while as to psychoneurosis, the figures show that in families of severely psychoneurotic patients there are two or three times as many psychopathic, psychoneurotic, and psychotic persons as in the average normal family. Economic status in itself is not considered as a very important factor.

Present Means of Prevention, Diagnosis, and Treatment

The greatest preventive measure is public education in mental health, and a survey is given of the work done by the Tavistock Clinic, the National Council for Mental Hygiene, the Central Association for Mental Welfare, the Child Guidance Council, and other bodies. Education of mothers, nurses, and teachers in the management of young children would materially lessen the incidence of psychoneurosis. So would educational measures directed to training the growing child how to live and to manage his instinctive urges. It is important to bring home the need for seeking advice in the early stages of mental illness; the most effective education in this respect is the evidence of good treatment at the psychiatric clinics. Finally, there is the urgent requirement for the better education of the general practitioner so that he may protect and guide his patients from their earliest years.

In-patient provision for chronic psychotic patients is reasonably efficient, but there is great need for specialized accommodation and treatment for patients acutely ill and with a prospect of recovery. Out-patient treatment suitable for slight and early cases is improving; there are now 187 local authority clinics in Great Britain which deal with mild psychotics. But in-patient provision for the psychoneuroses is seriously inadequate, and there is no special provision for chronic psychoneurotic patients, who constitute a serious social problem. Child guidance clinics number fifty-eight, but not quite half of them are (or were, in 1938) employing a full team—that is, a psychiatrist, a psychologist, and a psychiatric social worker. The committee does not regard with favour centres established exclusively for psychoneuroses arising under industrial conditions, apart from rehabilitation for physical disabilities.

The number of local authority institutions for defectives is increasing, but a considerable number of defectives are not "ascertained." Provision for persons addicted to alcohol or drugs is most inadequate, and doctors as a whole are not educated to treat this small but important group of patients. The committee recommends that some compulsory procedure be legally enacted to enable such patients to be effectively treated. Better arrangements are now being made for the treatment of delinquents; prisoners are observed with psychological

[1] *Supplement*, August 5, 1939, p. 113.

[2] A "psychotherapist," by the definition in the report, is a specially trained registered medical practitioner who in treatment employs wholly or predominantly methods of mental analysis, suggestion, persuasion, or re-education directed to rectification of abnormal mental states. A "psychiatrist" is a specially trained registered medical practitioner who devotes himself wholly or predominantly to the care and treatment of mental illness, including every form of mental deviation. A "psychologist," in the field of mental health, is a person with a university or equivalent training in psychology, who assesses intellectual capacity, gives remedial teaching and vocational guidance, and treats educational disabilities.

understanding, and facilities for special treatment can usually be granted.

The committee adds that in order to bring out-patient provision for mental illness up to a satisfactory level, many more medical practitioners should be trained in modern psychiatry, and because of the length of time required for psychological treatment it is necessary, if these practitioners are to obtain a livelihood, that paid part-time posts in clinics should be established. It is convinced that treatment, including psychotherapy, increases the number of those who recover or are enabled to make a reasonably satisfactory adjustment. Sufficient evidence has not been obtained to enable the value of various forms of psychotherapy to be assessed, and perhaps Janet's dictum that "the psychologist who understands his patient well and who knows how to use psychological stimulation succeeds with any method he cares to use" cannot yet be superseded. Only a small proportion of patients call for intensive or prolonged analytical treatment, though the committee is satisfied that such cases do exist.

Model Scheme for Treatment of Mental Illness

Seven pages of the report are occupied with a model scheme for the treatment of mental illness. A properly organized Mental Health Service would include the following:

1. Provision for investigating and treating adult patients suffering from psychoneurosis, psychosis, delinquency, drug addiction, and epilepsy, and for the care of mental defectives.

2. Provision for the development and adjustment of children presenting all varieties of psychological and psychosomatic problems.

3. A central advisory committee for each area, to include representatives of voluntary hospitals, medical schools, organizations dealing with mental health and defect, and educational and health representatives from public authorities. County councils should be pressed to form mental health committees in association with, but having a separate organization from, their public health committees.

In-patient services will include:

1. A ward in the general hospital, in charge of a psychiatrist, for psychoneurotics and mild psychotics.

2. Special psychiatric hospitals, which in the larger centres would include hospitals for psychoneurotics and mild psychotics, with attached out-patient units, and also acute units which would receive all police and observation cases, chiefly temporary and certified.

3. Institutions for long-continued and chronic cases, which would include separate hospitals or blocks for psychotic cases, though with staffing and administration under the same control as the provision for acute recoverable cases; also special provision for chronic psychoneurotics and addicts, and, of course, institutions for mental defectives.

Out-patient services will include clinics at the general and special hospitals, and at municipal hospitals where necessary, child guidance clinics, and mental defective training units. Properly organized laboratory services are one of the great needs of mental health, and laboratories, which might be grouped, should have the services of a full-time pathologist, with specialist assistants. All these clinics and units should co-operate as much as possible for organized research and medical teaching and the training of members of the ancillary services. The scheme is represented diagrammatically in the report. In the middle is the central psychiatric unit, including divisions for mild and acute cases. It is fed from the out-patient department, which has three sections—adults, children, and delinquents—and from the general hospital, and cases proceed from it to the rehabilitation and convalescent centre or to the mental hospital with its provision for recoverable cases and for chronic psychoneurotics.

Normally adult diagnostic and out-patient treatment clinics will not be separated. They should be staffed by a psychiatrist paid on a sessional basis and, where possible, a whole-time psychiatric social worker. An occupational therapist, and in some cases a speech therapist, should be attached. At least two sessions a week must be held, as many patients will require to be seen twice weekly. A scheme for diagnostic service and the treatment of the milder cases will eventually be necessary in the more remote country districts. This might be modelled on existing orthopaedic schemes, with central and outlying clinics, the latter to be visited at stated intervals. Adult in-patient clinics for mild cases might be "central" to a group of diagnostic and out-patient treatment clinics, and the same location might serve for both adult and juvenile cases provided that there were separate children's wards; Maudsley Hospital is cited as a good example. Acute cases and chronic and probably irrecoverable cases should be treated in different institutions, which may be jointly staffed. In the acute block there should be adequate facilities for all modern psychiatric diagnosis and treatment, including psychotherapy, hydrotherapy, occupational therapy, and the various forms of shock therapy.

Other recommendations by the committee are that in view of the large number of patients among the general medical sick who would benefit from psychiatric advice and treatment, every hospital of more than 100 beds should have on its staff at least one physician in psychological medicine with an appropriate status. A diagnosis or treatment clinic conducted by a general hospital should be separate from the neurological department, so that due recognition may be given to the relation between psychological and general medicine. Approved societies and the Ministry of Health should be asked to make out-patient psychiatric treatment an additional medical benefit, and the Ministry to make a grant towards an extension of psychiatric services. The need for special training institutions or colonies for persons of subnormal intellectual capacity, not amounting to certifiable mental deficiency, is pointed out. Often in these cases the only hope of satisfactory rehabilitation is in readjustment of environment. In the case of mental defectives a serious gap in provision is that many defective children who have not been "ascertained" leave school at 14 or 15, and as they have not been to special schools they are not notified and do not come under the Mental Deficiency Act until they may be "subject to be dealt with" after the age of 16. There is also no real provision in the way of institutional accommodation and community care for so-called moral defectives over that age.

Training of Personnel

The doctor is not sufficiently trained in the psychological aspects of medicine, and in this respect Great Britain is considerably behind other countries. The need for increased instruction receives practically unanimous support from psychiatrists. For graduates who wish to take the subject as a specialty the portal of entry is the diploma in psychological medicine, but this should be followed by prolonged clinical experience under supervision and control, preferably in residential appointments in psychiatric clinics or mental hospitals. Eventually psychological medicine should be raised to such a status as to warrant the award of a registrable qualification in the specialty by all medical schools. Many practitioners, however, who do not desire to pursue the subject as a specialty feel the need for further psychiatric knowledge to help them in their practice, and there is a growing demand for postgraduate courses in which the subject may be dealt with at greater length and more elaborately than in those which have been provided for insurance practitioners.

With regard to undergraduate training, the committee feels that the recommendations of the General Medical Council in 1936 are too vague and leave individual schools with too much latitude. The general object should be not to produce specialists in psychological medicine but to make students realize how the subject is integrated with general medicine. The preclinical instruction should be termed "medical psychology" instead of "normal psychology," and should be given by a psychiatrist, with relation to physiology on the one hand and to subsequent clinical studies on the other. Of twenty-two medical schools, nine at present give instruction in psychological medicine during the preclinical years. During the clinical years a three-months or six-months compulsory clinical clerkship in a psychiatric out-patient department is recommended. A good deal of teaching in psychotherapy and in other branches of psychiatry is practicable by demonstrations and discussions as well as by direct clinical work. The final examination should include a paper or at least questions on and a clinical examination in psychological medicine, and the examining boards should include psychiatric specialists. An

important part of the student's training should be to recognize the psychological aspects of the cases he meets in the general wards and out-patient departments.

The report concludes with a chapter on ancillary services—namely, mental nurses, psychologists, occupational therapists, psychiatric social workers, speech therapists, and, in children's work, playroom supervisors. General approval is given to the conclusions and recommendations of the Feversham Committee. The necessity that all workers in these ancillary services should have an adequate general education is stressed, together with the need for more facilities for the training of all nurses, especially mental nurses, in the management of psychoneuroses. In all the ancillary services a standard curriculum should be laid down for training and diplomas given to those passing examinations, and the members should be encouraged to form themselves into associations for the purposes of maintaining standards and securing adequate recognition, status, and remuneration.

The report is useful not only as embodying the views of this highly expert committee but also for the information it so concisely conveys.

Local News

SOUTH AFRICA

Health in the Witwatersrand Mines

The Health Department of the Central Mining-Rand Mines Group, of which Dr. A. J. Orenstein, a Vice-President of the British Medical Association, is chief medical officer, has issued a report for 1940 above the name of Dr. H. Q. F. Thompson, Dr. Orenstein being on active service. The average number of natives employed on the gold mines of the group during the year was 109,397, but, of course, a very much larger number were actually at risk for various periods. The number of shifts lost through disease or accident was 4.78 per native employed. The deaths from all forms of accident numbered 252. The mortality rate, 3.38 per 1,000 employed, was slightly higher than in 1939, but is still satisfactory, being much below the figures for earlier years. There was an increase in the number of cases of such respiratory diseases as pneumonia, influenza, and pleurisy, which is ascribed to the large influx of new labour. Pulmonary tuberculosis is also on the increase; silicosis remains stationary.

An Experiment with Sulphapyridine

Sulphapyridine has been used in the mine hospitals on the Rand as a routine therapeutic agent for pneumonia since the end of 1938, and the report states that it has undoubtedly contributed to the reduction in the death rate. The mortality figures for the four most recent years are as follows:

	Pneumonia Deaths	Per 1,000 Employed per Annum	Case Mortality Rate %
1937	308	2·94	11·58
1938	242	2·28	9·43
1939	56	0·55	2·61
1940	69	0·63	2·75

In 1936 pneumonia accounted for nearly 37% of deaths from all causes, whereas in 1940 this percentage was only 11. An experiment was carried out, beginning at the end of 1938 and concluding in 1940, on the treatment of pneumonia in native mine labourers employed at the Crown Mines. There were 200 cases, 100 of which received sulphapyridine and 100 acted as controls, receiving the ordinary symptomatic treatment. About half the cases had been previously inoculated with an autogenous vaccine, but as these fell half in the treated group and half in the control they may be eliminated. There were two deaths in each group; of the two in the treated group, one of the patients had not responded to the drug at all, and the other, though recovering from the pneumonia, died of diabetes a week later. There was vomiting in only one of the 100 cases, and there were no other untoward effects of the drug. Complications arose in one case in the treated group and in four in the control. The conclusions are that sulphapyridine does not appear to produce toxic symptoms in native males, even when larger doses are employed (the average dose given was 50.81 tablets or 25.4 grammes); that the period of pyrexia in pneumonia is reduced by the use of the drug, with consequent shortening of the stay in hospital (the average number of days in hospital was 15.20 in the treated group and 16.76 in the control; and it is the custom on the Crown Mines to keep every pneumonia patient in hospital for seven days after the temperature is normal, with a total minimum stay of 14 days); that the general discomfort of the patient is reduced, none of the treated group requiring sleeping draughts; and that pneumonia patients do not lose as much weight when treated with this drug.

Health in the Union

The annual report of the Department of Public Health, Union of South Africa, for 1939-40 deals with a population of over 10,000,000, including more than 2,000,000 Europeans. Among the latter heart disease occupies first place as the cause of death, cancer second, and pneumonia third. The death rate from the last named is the lowest for the past twenty years, possibly as a result of the introduction of sulphapyridine. It is stated that the statistics concerning the coloured population are still woefully deficient, but in the larger urban areas, where they are available, they show a very high infant mortality rate among natives. This is chiefly due to gastro-enteritis and respiratory diseases, in which ignorance and malnutrition are predisposing factors. Forty-seven cases of human plague with twenty-six deaths were reported during the year under review. Most of these occurred in the northern parts of the Orange Free State, but a small outbreak in the Vereeniging district of the Transvaal constituted the nearest approach of the disease to Johannesburg. The majority of the cases were bubonic, a few being septicaemic; one pneumonic outbreak occurred on a farm in the Orange Free State. Field surveys demonstrated the close relationship between mole-rats and gerbilles. All three species of the former were found to be susceptible to plague, so that these animals, despite the difference between their flea-fauna and that of the gerbilles, must be regarded as possible agents in the spread of infection.

Correspondence

British Medical Students' Association

SIR,—In view of the fact that the chairman of the Medical Planning Commission has asked the British Medical Students' Association to produce a memorandum on medical education, it may be of interest to your readers to hear something about the recent council meeting of that body. The main business on the agenda was the production of this memorandum, and a sub-committee was set up to promote study and discussion on the subject in all medical schools, to place previous memoranda of the B.M.S.A. and other relevant literature before medical societies, to prepare curricula, and to draft a representative and yet detailed and constructive document for presentation to the Medical Planning Commission. All students who are interested should communicate with Mr. K. C. Willett at the Middlesex Hospital, who will supply further information.

Student health questions were included in the reports from several medical schools and were discussed by council. It appears that in a few medical schools, notably University College Hospital, some effort is made to apply the principles of preventive medicine to student health. At these hospitals there is voluntary routine medical examination from the time of entry to the university, including yearly radiographic examination of the chest and Mantoux test conducted by the Prophit T.B. Survey. Hospital treatment is free or adapted to the student's means, and operation fees are unknown. Such conditions are too rare. In other schools there is no provision for medical examination at any time, and to request such examination other than on the basis of severe and unmistakable symptoms would be to invite the label "neurotic." In one base hospital it is reported that students are required to pay £4 4s. weekly under E.M.S. regula-

tions for a bed in a general ward. The result of such policy is shown in a report from a London hospital of seven cases of pulmonary tuberculosis, one fatal, occurring in a period of six months.

On the basis of reports and discussion the B.M.S.A. council unanimously passed the following resolution: B.M.S.A. approves the principle of free medical treatment of all medical students; this should include the attendance of doctors and hospital accommodation. Our policy is that every medical student should be examined on entry to the university, but that entry to the university should not be conditional on the examination. This examination should be the individual responsibility of the respective schools. The examination should be at regular intervals thereafter, and should include full radiographic examination of the chest. As an immediate measure it is recommended that schools apply for regular examination under the Prophit scheme for tuberculosis research (Royal College of Physicians).

Delegates drew the attention of council to the recent order of the Ministry of Labour making part-time military training compulsory for all medical students. This order seems to have been subject to considerable variation in application, and the reactions of delegates varied somewhat with the interpretation placed on the order by their respective deans. It is generally agreed that the primary duty of the medical student must be to get qualified as quickly as possible, but there are many students who feel that purely military activities are a waste of both time and equipment for future doctors, and that primary R.A.M.C. training, A.R.P. work, etc., would be a less incongruous form of war work. A great part of the difficulty is the failure of local authorities to utilize students effectively in A.R.P. schemes; and where students have fitted themselves into such schemes it has usually been in spite of the local authority.

Delegates from Scotland drew attention to the position of the students of the extramural colleges in Glasgow and Edinburgh. These students qualifying for the licence of the Triple Qualification Board have twenty-two weeks' holiday every year throughout their course, including a three-and-a-half-months summer vacation. They have been carrying on a vigorous campaign to obtain clinical teaching during the summer, but despite an appeal to the Ministry of Health they are still compelled to spend the summer haymaking, etc. Surely the six calendar years required by the G.M.C. for qualification would be better replaced by a minimum number of weeks' work if this is how the regulations are to be applied.

There was some discussion of the position of students taking house posts before qualification, but this was more in the nature of exchange of information about conditions, salaries, etc., and no specific recommendations were made by council.

The A.R.P. activities of the various medical schools were discussed when council was addressed by Dr. Sinclair Loutit, Medical Officer, Civil Defence, Finsbury, on "A.R.P. and the Student." The intrinsic difficulty in student relations with local authorities is the tendering of effective aid at the right moment without undue waste of time that should be spent in study. Some of the London hospital students combine first-aid work with a three-months casualty post. Students on these posts are required to sleep in hospital and be available at all hours; living expenses are paid, and the student is a unit in the E.M.S. for this period. Dr. J. Trueta addressed council on "The History of War Surgery." The lecture was illustrated by slides of his own cases and was enthusiastically received. The tone of the discussions throughout bore witness to the determination of students to play their part as best they may in present circumstances, at the same time keeping clearly before them ideals to be achieved in the post-war world.—I am, etc.,

C. M. TINKER,
Hon. Sec., B.M.S.A.

Cambridge, Aug. 4.

Hypoprothrombinaemia

SIR,—In their paper on hypoprothrombinaemia and avitaminosis-K in this *Journal* (August 9, p. 190) Drs. Robert Kark and A. W. Souter have given a very comprehensive summary of the present clinical position of this problem. Inevitably, in dealing with such a wide subject in so short a space, they have cited as facts certain observations the import of which is still *sub judice*. Certain statements in their paragraph on hypoprothrombinaemia in the newborn are open to criticism in the light of other investigations on this subject.

1. Shettles *et al.* (1939) showed that the prothrombin concentration apparently suffered greater reduction in the premature than in the mature infant, but Waddell and Lawson (1940), using Quick's method, were unable to confirm this. In explanation, it has been suggested that there may be some compensating factor present in the premature which facilitates the conversion of prothrombin into thrombin, so that there is but little difference from the mature infant in the "prothrombin time" in spite of a reduced prothrombin concentration. Our observations have shown that, using a method found to be entirely comparable with that of Quick, the only significant difference in the clotting activity (measured as the prothrombin index) in an unselected series of mature and premature infants has been a delayed onset and a slower rate of recovery in the prothrombin index after the initial fall, and seem to indicate that prematurity in itself is not an important factor in the production of "pathological hypoprothrombinaemia" in the newborn.

2. In the full-time infant the clinical and laboratory data obtained in these investigations during the past eighteen months point to the conclusion that it is rarely possible to attribute severe hypoprothrombinaemia in the newborn to post-natal conditions alone. It has been found that the usual methods of feeding or the use of glucose water have no effect on the initial fall, but do influence the occurrence and rate of the ensuing return towards normal.

3. The prothrombin index of the mother has been found to be consistently lower at the time of delivery than before or twenty-four hours after labour, and on two occasions has shown a definite deficiency at that time (Macpherson *et al.*, 1940). This constant reduction at the end of the second stage is probably in part due to the greatly increased katabolism which occurs during labour. Prolonged uncomplicated labour, however, has not been found to be a cause of abnormal prothrombin deficiency in the mother or baby at birth.

These observations have been recorded in greater detail in a report which will shortly be submitted for publication.—I am, etc.,

A. I. S. MACPHERSON, F.R.C.S.Ed.

Edinburgh, Aug. 11.

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Air-raid Noises in Psychotherapy

SIR,—In the *Journal* of August 2 (p. 158) an article by Majors F. L. McLaughlin and W. M. Millar calls for some comments. The authors state that the employment of artificial noises is only part of the treatment, but do not sufficiently emphasize this point. They substitute a "conditioning," different from the neurotic reaction, by the employment of noises that startle the patient. They do not specify what they mean by "relaxation." Hysterical cases will always have some degree of dissociation, amounting frequently to a light hypnotic state; obsessional cases will be to some degree tense under any attempt to produce relaxation that stops short of a non-conscious state.

Reconditioning, or the substitution of another conditioning, is an excellent and often necessary auxiliary treatment, but it is only part of the treatment. The authors recognize this in the use of the word "abreaction," but do not give any definition of this term. In all cases falling within the group they designate there is a continual smouldering abreaction declaring itself to some degree. The use of any method to produce further abreaction is not, as was held during the last war, merely to "de-tension" by an escape of psychic pressure, but should have as its aim the gain by the individual of some significance of its causation and its suppression (defence mechanism against consciously knowing). This brings one to the main issue—always the same under any form of treatment that aims at lasting relief and control—namely, that of substituting a new significance or ideation with regard to stimulus and response and the concomitant reasoning of cause and effect. In order to do this it is necessary to employ two factors: (*a*) some definite psychopathology, and (*b*) an investigation of the fantasy-life in relation to the experiences of the earlier life-phases and functioning of the individual.

Everyone working with soldiers must have been struck by the difference between the toxic-exhaustive reactions of mere physical and physiological (metabolic) strains and stresses, which were adjusted in a few days, and the delay-action series of explosions which periodically erupt in the group of cases under review. Unless the earlier imaginative ideation or fantasy—a very real psychic phenomenon with potent motivation—is dealt with there is nothing to prevent the result of a purely "reconditioning" treatment from falling to pieces when later danger situations arise under circumstances where the individual realizes he is no longer in the safety-belt zone of a hospital with make-believe dangers. Conditioned states require constant reinforcement to keep them intact.

There appears to be a movement or policy afoot to deny the reality of psychoneurotic conditions. The civilian, who has been praised for his courage in the "front line," is denied the right to a diagnosis of this condition, though those capable of making such a diagnosis are only too well aware of how many cases exist. Quite recently the *Times* has lent its columns to the movement (witness a leader "Health and Stress," July 31). It is not a far cry from the civilian to the soldier, and signs are not lacking that the findings of E.M.S. psychiatrists are becoming unwelcome.

To the uninitiated or to those who would like to have it so this communication of the use of air-raid noises might be taken to be the main line of treatment. It would be a catastrophe if we regressed to an orientation to neurosis that prevailed during the last war, and the treatment of anxiety states were held to be only a reconditioning process.—I am, etc.,

Aug. 5. J. C. MACKWOOD.

Mental Defectives in the Army

SIR,—After reading Dr. Esher's article in your issue of August 9 (p. 187), together with the editorial comment in the same issue, I believe the following remarks may be pertinent.

From experience at this colony of the capacity shown by mentally defective men to assimilate training in the simpler and semi-skilled trades, I should say that the mental age levels suggested for total refusal of enlistment and for enlistment into labour corps only are, each in its sphere, too high, though no one can quarrel with the principle of Dr. Esher's recommendation. It is possible that the use of the progressive matrices test in the Army (I believe this test is officially adopted) may account for the mental age levels of Dr. Esher's recommendation, for, using the progressive matrices test together with the older methods of assessment, I have never known the matrices test give the lower mental age figure, and have often noted that it gives a higher.

Accepting the principle, however, surely it would be good and practicable policy that all men refused enlistment by military service medical boards and those discharged as untrainable by reason of mental deficiency should be at once notified to their local mental deficiency authority. Their subsequent careers could then be supervised and, if necessary, controlled in the interests of social welfare and eugenics.—I am, etc.,

Brentry Colony, Bristol, Aug. 12. JAMES JOHNSTON MASON.

Home Guard Medical Supplies from Canadian Red Cross

SIR,—You published some time ago (April 19, p. 604) a letter from the senior medical officer, Kent Zone, Home Guard, on a local scheme for the collection of Home Guard casualties in the event of invasion. The following further details, especially the equipment of these casualty collecting posts with medical supplies through the generosity of the Canadian Red Cross, may be of interest.

In that part of Kent with which I am associated a total of 180 posts have been established at farmhouses, private houses, churches, schools, garages, country inns, etc., no one being more than a mile from its neighbour. At the time the scheme was drawn up there was no indication from the War Office that any medical supplies would be forthcoming, and certainly not on the gigantic scale envisaged in those early days when a medical service for the Home Guard came into being. I was fortunate enough to obtain an interview with Colonel Scott, English Commandant of the Canadian Red Cross in this country, who was immediately sympathetic, and said he thought supporters of the Red Cross in Canada would be more than pleased to know that some of the medical supplies and comforts they had so generously provided would be at the service of Home Guard casualties in this country. There and then he produced long lists of available Canadian Red Cross materials, and together we went through those lists with a view to picking out items most suitable for the collecting posts.

The next thing was the arrival at my headquarters of eighty packing cases full of medical stores, and 100 empty packing cases as well. With several other medical officers and a large working party of officers and men of the Home Guard, Whit Sunday was spent opening the Canadian cases and sorting out the contents so that each of the 180 cases should contain a like amount of first-aid supplies. Each case contained a large sterile tin, hermetically sealed, with several hundred dressings, a generous supply of blankets, triangular bandages, T-bandages, roller bandages, together with socks, pyjamas, pneumonia jackets, mattress pads, and surgical towels.

Each of the 180 crates was securely sealed and two stencils were used to paint on the following messages: (1) "Property of the Canadian Red Cross"; and (2) "Home Guard Dressings—for use in invasion only." Thus every recipient knows to whom it really belongs, and exactly to what purpose its contents are to be put. They have also been informed verbally and by letter that if the contents are not used for the specific purpose for which the Canadian Red Cross granted them, they will have to be returned in good order to their generous donors. Since then a further small package has been sent to each post, and this contains the following: 10 grains of morphine in tablets (each containing 1/3 grain) suitable for placing under the tongue, a sterile tin containing several yards of vaselined gauze, and a dusting bottle containing a quantity of sulphanilamide powder. We have again to thank Colonel Scott and the generous people he represents for the last of these three items; the first two we were able to purchase thanks to the generosity of Mrs. M. F. Buckingham and a small contribution from each local district battalion fund.

Thus anyone who is wounded or injured or burned by flame-throwers in this part of the country will not have to walk, crawl, or be carried more than half a mile before adequate first-aid comforts will be available at a post, the exact location of which each man will be aware of beforehand. It should work out, then, that all wounded will be collected under one roof in each hamlet or village or district, and while the stress of battle continues wounds will be dressed, fresh clothing applied, pain alleviated, burns will receive antiseptic dressing and given suitable covering, and untold suffering avoided and lives saved, until such time as roads become passable for medical officers or ambulances. Thanks to the generosity of the Canadian Red Cross, the country areas of three hundred square miles of England which might, in time of combat, be quite beyond the reach of any other organization, have now the best-equipped casualty collecting posts for the Home Guard in the whole country. Each man is being taught as much first aid as possible so that he may help his wounded friend, and many of the posts are staffed by housewives who have had considerable nursing or first-aid experience.

I wish to express the warmest and deepest thanks of every member of the Home Guard, from the Commanding Officer and Senior Medical Officer down to the most recent volunteer, to our Canadian friends who, by the generous contribution of their time, their goods, and their money, have made possible this munificent gift, and all that it means to us both now and, perhaps even more, in the future.—I am, etc.,

London, W.1, Aug. 6. A. LAWRENCE ABEL.

Treatment of Bacillary Dysentery

SIR,—Perusal of recent arrivals of medical journals (*Lancets* and *British Medical Journals*) reveals three communications in which bacillary dysentery is discussed, and which I feel call for comment. One is the annotation in the *Lancet* entitled "Chemotherapy inside the Bowel,"[1] another Sir Philip Manson-Bahr's article "The Prevalent Diseases of Libya,"[2] and the third Drs. Reitler and Marberg's "Note on the Treatment of Acute Bacillary Dysentery with Sulphapyridine" in the *British Medical Journal*.[3] The first two are in some respects misleading, to my way of thinking, and the third requires to be seen in its proper perspective.

Sir Philip Manson-Bahr refers to bacillary dysentery as "this acute and often fatal disease," and proceeds to say: "It is to be hoped that lessons learned in the desert campaigns of the last war will not be overlooked in this—that bacillary dysentery (Shiga, Flexner, and Schmitz infections) will be readily recognized and promptly dealt with by well-accredited remedies." Practically the only accredited remedy he cites is anti-Shiga serum in Shiga infections, while he mentions as modern developments blood transfusions, and the use of "targesin" and of Moro's apple diet. But there is not one word about the most dramatic of all modern developments—phage therapy.

The theme in the annotation is the use of sulphanilamide preparations. Referring to sulphanilyl-guanidine, it is stated that "its most remarkable property is its bactericidal action on the coliform organisms in the mouse intestine." And passing from mice to man it is inferred that "if this activity extends to the intestinal pathogens the drug may prove most valuable in the treatment of infections localized mainly or entirely to the intestine, such as bacillary dysentery and cholera." All delightfully hypothetical! Further, there is the important admission contained in the two sentences: "Acetylation occurs, as with other members of the series, and the conjugated compound is probably concerned in the toxicity of the drug on the kidney. The authors believe from their tests that the toxicity of sulphanilyl-guanidine is of the same order as that of sulphapyridine or sulphathiazole, and maintain that with reasonable care the risk of toxic effects will be small because so little of the drug is absorbed."

The third communication stands out quite apart as something concrete and helpful, being a record of results (twenty cases) with sulphapyridine treatment, which the authors state to be "so uniformly good even in the severe cases" as to justify publication. The table accompanying the communication certainly tends to establish that sulphapyridine can cure acute and chronic bacillary dysentery.

As a convinced adherent of phage therapy, a respect for the opinion of others and the good faith of all leads me to ask, Where does phage therapy really come in and why is it missing from these pictures? It can emphatically be stated that the treatment of acute bacillary dysentery presents no problem whatever provided one has at one's disposal good phage preparations and knows how to use them. That at least is my experience, and that of quite a number of medical practitioners in this city. Why under such circumstances, then, should valuable lives be lost or invalided among our troops while the ideal sulphonamide derivative is being sought for (*vide* the annotation), although now possibly found (Reitler and Marberg's communication), when phage preparations rightly used can eliminate all this? Is it because experts at home and their representatives in military guise in the Near and Middle East remain unconvinced about the efficacy of phage therapy mainly because they believe it to be discredited? It is the easiest thing in the world to discredit phage. Bearing in mind its biological and conditional nature, it is easy to foresee that among other ways such a risk will be run whenever (1) the impossible is asked of it; (2) poor or ill-adapted phage preparations are used; and (3) nursing and diet are inadequately attended to.

For instance, it is unfair and rather asking the impossible of phage to expect it to cure other than the early acute case of bacillary dysentery, due to one or other of the classical or recognized organisms, since commercial dysentery phage preparations are prepared as a rule at the expense of classical organisms only. The concomitant organisms, which later often supplant the classical ones when the case has proceeded to gross ulceration and infection of the ulcers by secondary invaders, are not to any appreciable extent covered by many phages. To ensure the best results, phage preparations to cover such supplementary organisms should therefore be available if the case has proceeded at all beyond the initial stage. The simultaneous use, therefore, of phage preparations, based on a selection of representative bacterial substrates that are so far as possible 100% lysed *in vitro*, affords a chance of forestalling and dealing with virulent concomitants by direct lytic action (d'Herelle),[4] by possible antivirus action (Besredka),[5] and by avirulent bacterial transformation action (Compton).[6] That is what is meant by the note of warning about poor or ill-adapted phage preparations. Finally, by attention to nursing and diet is meant that the acute patient should whenever possible be put to bed to reduce to a minimum his energy and food requirements, so that he can be put on a starvation diet of Vichy, Evian, or other mineral water for twenty-four hours to rest as much as possible the diseased bowel while the phage is carrying out its beneficial action (a 2-c.cm. ampoule of a good dysentery and meta-dysentery phage preparation, alternating with a like ampoule of a good Salmonella and coliform phage preparation every four hours during the first day; with a similar "follow-up" on the second day if required).

The paper by Reitler and Marberg is particularly interesting in that it appears to establish a future for the sulphonamides in bacillary dysentery. Their table of results seems to indicate for cases admitted to hospital on the first and second day of the disease, with treatment beginning on the second and third day, an average reduction in daily motions from twenty-two to six after twenty-four hours' treatment. With the perfected phage preparations now being employed by us we estimate a still more dramatic reduction, without any such qualification as "tenesmus . . . felt for one or two days more by some patients," as indicated by Reitler and Marberg. Tenesmus, in fact, is one of the first symptoms to disappear with phage treatment. This means that good phage preparations act more quickly and thoroughly than sulphapyridine. Reitler and Marberg's figures suggest to me that the sulphonamides may find a useful place in the treatment of the chronic case (that may not respond immediately to phage), however satisfied they may at present be with sulphapyridine in acute bacillary dysentery. In any case the introduction of sulphonamide therapy lends a reasonable hope to the emptying of wards of military hospitals which have hitherto been needlessly chock-a-block with cases of dysentery because of no phage being available for immediate use at advanced field outposts, and which, I venture to suggest, might more rightly be labelled "neglected dysentery," with all that that may mean in a limitation of the suffering and invalidism from this often fatal disease.

Another advantage of phage therapy is that it is quite harmless, having no deleterious effect, so far as is known, on the kidney or other tissues, as may happen with sulphonamide therapy. In fact, this is one of the strange things about the phage lysis of toxic bacteria. After lysis the soluble lysates rich in bacterial disintegration products appear to be denuded of toxicity and can be injected intravenously with impunity. We at times utilize this property in these laboratories for the initial immunization of rabbits to obtain specific agglutinating serums when the antigens to be injected are at all toxic.

If the Service authorities have any doubt concerning the accuracy of the phage-therapy facts of this letter I am prepared, with the sanction of the Alexandria municipal authorities, to supply perfected phage preparations sufficient to treat twenty acute cases of bacillary dysentery, of not more than two to three days' duration from the onset of blood and mucus symptoms, in any military hospital in Alexandria, and can guarantee perfect results if the dietary instructions are adhered to during the two to three days of cure, with, I should hope, the return of the men to duty on the third or fourth day from the beginning of treatment.—I am, etc.,

ARTHUR COMPTON,
May 24. Director of Laboratories, Alexandria Municipality.

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[2] Ibid., 1941, **1**, 253.
[3] *British Medical Journal*, 1941, **1**, 277.
[4] *The Bacteriophage and its Behaviour*, 1926, Baltimore.
[5] *Etudes sur l'Immunité dans les Maladies Infectieuses*, 1928, Paris.
[6] *Ann. Inst. Pasteur*, 1935, **54**, 725.

Unabsorbable Suture Materials

SIR,—A useful point to remember is that linen thread may be boiled in water which is alkaline without becoming rotten, whereas the slightest trace of alkali or even of alkaline earths rots silk with great rapidity. The late Sir Henry Gray habitually used linen thread for his operative work over a period of some twenty-five years with uniformly good results. He gave up using silk for the reason stated and for other reasons about the year 1912.—I am, etc.,

London, W.1, July 31. G. H. COLT.

Deaths on the Table

SIR,—The article on anaesthetics in your issue of August 9 (p. 207) is presumably written by the same gentleman who wrote the excellent letter which was printed in the *Journal* of June 7. This article on anaesthetics appears to be of paramount importance. I am not a professional anaesthetist, but I have given anaesthetics and have seen at close quarters very many given. At an operation I am, rightly or wrongly, always more interested in the anaesthetic than in the operation. I agree with Dr. Elam that some of those cases he mentioned could have been saved, and this applies probably to a good many other "deaths on the table." A case is made out for an immediate and close investigation into the subject of surgical anaesthesia. It is noticeable that in all the cases given by Dr. Elam gas-oxygen anaesthesia is involved. One is prompted to ask why the good old safe open-ether method is relegated to the hoary past to make way for a complicated engineering robot which, for all its battery of bottles and shining chromium, has not yet acquired all the virtues of a knight in shining armour.—I am, etc.,

London, N.W.11, Aug. 8. L. S. WOOLF.

SIR,—The article on deaths on the table (August 9, p. 207) appears to be rather inadequate. After commenting on the possibilities of avoidance, your contributor then proceeds to give a somewhat confused account of a number of such deaths, with no attempt at differentiation between true anaesthetic deaths and those occurring while the patient is under the influence of an anaesthetic—a very different thing. Unless this is done it is impossible to get a clear view of what, after all, is the principal object—prevention. May I suggest that we should aim to have a clear view of the possible causes of death and a well-prepared plan of prevention, which should come into action at the earliest sign of impending collapse. I seem to remember that Hamilton Bailey emphasizes the necessity for such a plan in his excellent book *Emergency Surgery*.

Most anaesthetic deaths (including the examples given in your article) fall into one of three groups: (1) Deaths due principally or entirely to the anaesthetic. (2) Deaths incidental to anaesthesia—for example, vomiting. (3) Deaths due essentially to the patient's general condition or to the condition for which the patient is undergoing operation.

In Group 1 many deaths are unavoidable, but surely choice of anaesthetic, which calls for the fullest exercise of the anaesthetist's powers of judgment, could be the means of saving many lives. For example, in Case 6 quoted in Dr. Elam's article, the use of a local anaesthetic, which appears to be largely neglected in this country although widely used on the Continent, would seem to have been indicated. Again, correct premedication is of importance. Morphine, for instance, should usually be avoided, since by its depression of the respiratory centre it undoubtedly leads to unsatisfactory induction in many cases, particularly in the hands of inexperienced housemen. This may then be a factor in bringing about a fatal issue, since there is a temptation to give larger doses of anaesthetic, although the real cause of the "lightness" is not lack of anaesthetic but shallowness of respiration.

In the second group deaths produced by vomiting, etc., can in some cases be prevented, as Dr. Elam points out, by pre-operative stomach washouts and the use of the most suitable means of anaesthesia.

It is in the third group—those cases in which the patient's general condition is adverse—that most can, and should, be done in the way of prophylactic treatment. Most of us now must have seen many air-raid victims who would never have survived successful surgery but for the efforts of the resuscitation squad. Surely the same principles of treatment should be applied to the "civilian" case. Pre-operative saline, plasma, or blood is frequently life-saving, and every anaesthetist should be able to direct its administration before or during the operation. Such preventive treatment is physiological, and is calculated to meet with a greater measure of success than the tardy resort to stimulants, many of which have been shown, experimentally and in practice, to be of doubtful value.

As an example, may I be permitted to mention a patient who came under my care as resident surgical officer in an E.M.S. hospital. An aircraftman was admitted from an R.A.F. sick bay with right pyonephrosis. The kidney was completely disorganized, and after chromocystoscopy had shown the contralateral kidney to be functioning satisfactorily, nephrectomy was decided upon. His general condition was poor, and before operation his temperature was 103° and his pulse 120. During the operation his condition rapidly deteriorated, and towards the end his pulse was imperceptible and his breathing shallow in the extreme. The wound was rapidly closed by through-and-through sutures, by which time breath sounds and movements could scarcely be detected and pulsation was absent everywhere in the systemic circulation. The apex beat was only just audible with the stethoscope, and the pupils were dilated and fixed. However, the administration of plasma was followed within twenty minutes by an almost miraculous recovery, and after a quantity of blood had also been given the patient was returned to the ward in excellent condition. But how much better it would have been had this collapse been prevented by the earlier administration of continuous physiological fluid!

Particularly in intestinal obstruction and urinary retention is an appreciation of the biochemical changes and their application to pre-operative treatment likely to repay the surgeon. In this group also come those cases where choice of a suitable operation may make all the difference to the patient's prospect of recovery. Included here are the rapid guillotine amputation, two-stage methods where feasible, etc.

It is a pleasure to me to record my thanks for permission to quote the case mentioned in this letter to Mr. Hugh Donovan and Mr. Dudley Marks, advisory surgeons to this hospital.—I am, etc.,

Aug. 11. F. G. HOLLANDS, R.S.O., E.M.S. Hospital.

Ether Convulsions

SIR,—I would be grateful if you would permit me to comment on some of the statements put forward by Mr. Hamilton Bailey (July 5, p. 32). The fact that a cerebral depressant, such as evipan, is effective in ether convulsions and convulsions due to novocain does not imply, necessarily, a similar origin to these convulsions. Inadvertent intravenous injection of a local anaesthetic will tend to give rise to syncope or convulsions. Mr. Dickson Wright suggested nembutal in the treatment of ether convulsions some years ago. Evipan has been advocated by many observers.

In 1928 Dr. Hadfield noted that the heat factor appeared to occur in a number of cases of ether convulsions, but the significance of this, if any, was not stressed. I have elaborated on this factor in several papers, and suggested that "these cases may be due to the combination of toxaemia, dehydration, hyperpnoea in a warm atmosphere, together with partial anoxaemia, difficult to avoid in anaesthesia, all tending to produce sufficient electrolytic imbalance to increase muscular and nervous excitability." Anoxaemia as a cause appears to have received special attention in American clinics, and a personal observation of cases deprived of oxygen would tend to make me appreciate the importance of this as a contributory factor.

I append a short bibliography which would apply more especially with regard to the points raised by Mr. Hamilton Bailey.—I am, etc.,

July 7. F. W. G. SMITH.

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Communal Feeding in Schools

SIR,—I see in the *Journal* (August 9, p. 211) that Dr. Letitia Fairfield advises the medical profession to "think twice before supporting a demand for communal meals as a normal thing for all children in peacetime," though she admits that "under the stress of war conditions school feeding has become a general necessity," and that "all would agree that it should be made an opportunity for teaching the value of good cooking, the wise selection of foods, and a civilized manner of life." Why, then,

does she virtually advise us to oppose communal feeding in schools in peacetime? The reasons Dr. Fairfield gives are approximately as follows:

1. She regards the taking of meals together as a strong binding element in family life, which she fears may be lost or weakened, together with parental authority and family discipline. If these fears were well founded one would expect to see the dire results of communal feeding on those who have "suffered" from it—namely, the children of the middle and upper classes, the majority of whom spend their most impressionable years in communal living at public schools. Yet the disastrous effects which Dr. Fairfield fears have never become manifest under the public school system, whose products are alleged to be the backbone of the nation.

2. She thinks our aim should be to help the mother in her task of feeding her children, but not to take it out of her hands altogether, which she fears would be the end-result. Why the end-result should be considered calamitous even if it came to pass is not clear. However, Dr. Fairfield agrees that the mother should be helped in her task of feeding her children, and I ask, In what better way can we help her and her children than by the provision of properly balanced school dinners? In this way we can make the best of both worlds, for "dad" and "mum" can still preside at breakfast and tea without loss of vitamins and the other essentials of a healthy diet so difficult to ensure when all the meals are taken at home. It is true that man does not live by vitamins alone, but it is also true that he cannot live without them, and suffers from a shortage of them and the other essentials of a properly balanced diet.

According to the figures given by the Chief Medical Officer of the Board of Education in his annual report for 1938, 11.3% of the school children seen in routine medical inspections were slightly undernourished, and as there is no reliable means of detecting undernourishment in its early stages or when the diet is not grossly deficient, the total number of undernourished school children may easily be 20% or more. Therefore the only real solution of this nutrition problem lies in compulsory and universal school dinners. It is too important for the nation as well as for the children to leave to chance any longer. Moreover, there is no reason why school dinners should appreciably increase the taxpayers' burdens, as the parents of all but necessitous cases should be required to pay the full cost, which would probably be considerably less than the cost for which they could provide a similar meal at home.—I am, etc.,

G. W. FLEMING,
Medical Officer of Health.

Gosport, Aug. 12.

Aggregation of Toddlers

SIR,—In Dr. James Kerr's letter in your issue of July 26 (p. 137) occurs the sentence: "Crèches and day nurseries should not be tolerated in any civilized communities . . . except under the inevitable compulsion of war." Since the extension of crèches and day nurseries is one of the urgent requests to local authorities made by the Ministry of Health at the present time, it might be of interest to consider the objections raised more closely, and to try to assess the experiences already gained in this field in peacetime conditions both in this country and in Soviet Russia, where the system has been widely used for many years.

Dr. Kerr appears to be in full support of nursery schools, which he believes to be "the right of every child from 2 to 5 years of age," and records the benefits of the system in the greater freedom from infections, debility, and accidents. Further, he stresses the biological necessity for plenty of space and freedom where children can be fed, exercised, sleep, grow, and educate themselves into the membership of a child community. His objections to crèches and day nurseries appear to be based on the greater risks of infection in younger children, but he points out, nevertheless, "that it is, however, the homes themselves which are the chief distributors of early infections." Further, he makes a plea for the early immunization (at 1 year) of children for diphtheria, which he regards as of much greater value than that of the school child. This surely is something which comes within the scope of the crèches and day nurseries, and could be extended to cover the risks of infection from whooping-cough and measles (pooled adult serum for prophylaxis). My own experience in peacetime crèches and day nurseries in Edinburgh, particularly in slum districts where large families predominated, was consistently favourable, as evidenced by the improvement in height, weight, and physique of those children attending them. That the mothers were of like opinion was shown by the long waiting-lists for admission. These experiences are borne out by numerous other public health workers in different towns.

In Soviet Russia, where perhaps the majority of women prefer to continue their careers after marriage, the number of crèches and nursery schools is proportionately large—840,000 in urban areas in 1939 and a million in rural areas. These latter include the seasonal nurseries, and also the large caravans in charge of a trained nurse, with all the usual equipment, which follow the mothers out to the fields so that they may feed their babies at the appropriate times. A doctor and trained nurse are always attached to these crèches, and a routine examination of every child is made each morning on admission. Pulse and temperature are taken and the throat examined. In this way it is possible to prevent the outbreak of epidemics of colds, influenza, etc., as well as the more serious infections, and to maintain constant supervision of the health of every individual child. As a prophylactic measure against summer diarrhoea, etc., and tuberculosis many of the crèches and nursery schools move out of the large towns into the countryside for part of the summer. This measure has proved of considerable value in present circumstances, since children and mothers as well as staff have long been accustomed to the idea of evacuation to the countryside and seaside during the summer months. The success of day nurseries and crèches, as well as of nursery schools and kindergarten, is reflected in the health of the child population, the fall in the mortality and morbidity rates of infectious diseases, and in the rate of child mortality in the U.S.S.R., which has fallen by half since this policy was instituted in 1917.

In view of these experiences under peacetime conditions, both in this country and abroad, I believe it should be possible to view the extension of the crèche and day nursery system not as a necessary evil but as a useful and permanent contribution to child welfare and the gradual development of preventive medicine in this country.—I am, etc.,

JOAN K. MCMICHAEL, M.B., Ch.B.
Assistant M.O.H.

Southall, Aug. 17.

Malnutrition

SIR,—What are we to think of Lord Woolton, who said breezily at Cheltenham last week that there was no malnutrition in this country? Careful investigations have found that one-third of the children born in this country are born into families that have not enough money to give them adequate food. A great social reformer has said that children are the greatest single cause of poverty in this country. Have our rulers not yet realized that it is self-satisfied short-sightedness of this sort (to call it by its most polite name) which caused Lord Baldwin to deceive himself and us when he said he was keeping our Air Force equal to that of Germany, and poor Mr. Chamberlain to trust in the mesmeric quality of his eye to force Hitler to keep the promises he gave him at Munich, when the latter had already broken all the promises he had made before then.

If there is no malnutrition, why do children from our big cities flourish so radiantly in the country after they have been there a few months? Why are our soldiers so undersized compared with the Australians? As doctors, we must never cease to din into the heads of our rulers that no family of five persons can be adequately nourished unless its gross income exceeds 60s. to 65s. per week. If to enter a State Medical Service is to be governed by such people as these rulers let us remain instead in our present muddle.—I am, etc.,

M. E. LAMPARD.

Colchester, Aug. 11.

Diet and Teeth

SIR,—In his letter to you of August 9 (p. 212) Mr. Griffith Evans asks: "Has calcium nothing to do with teeth?" He does not make it quite clear whether he is discussing the effect of calcium on the development of teeth or on the incidence of dental caries. As regards their development, Sim Wallis, Fish, and others have shown that only a diet with an extremely low calcium content will adversely affect tooth structure, for the developing teeth have a priority over the bones and other tissues

in receiving whatever calcium is contained in the diet; so that only in gross cases of rickets are rickety teeth to be found, and while no one imagines that the diet of the poorer classes is perfect to-day, cases of rickety teeth have been very infrequent for years.

Dental caries is a saprophytic phenomenon caused by the penetration of bacteria into morphological crevices and permeable enamel faults. These crevices and faults are common to all mammals, but caries is not, because the bacteria concerned occur to any great extent only in man. A hereditary factor appears to govern the depth of the crevices and the number and extent of the enamel faults, as caries-free teeth often run in families; such families are to be found in all classes irrespective of diet, hygiene, vitamins, sunshine, etc. Because of their shape, which does not easily lead to food lodgment, rickety teeth are often less prone to caries than teeth of a normal dentition. The other main factors controlling the incidence of dental caries are the amount and kind of carbohydrate food eaten because of its bacteria-culturing properties in the mouth, the efficiency of oral hygiene, and an immunity factor sometimes present apparently in the saliva.

Thus, unless the standard of national diet falls to a level that was found only among the very poor in the last century, then the national loaf will have nothing to do with teeth, and even if a generation grows up with rickety teeth it will probably have a lower incidence of dental caries than the present one.—I am, etc.,

Berkhamsted, Aug. 9. JAMES CAMPBELL.

Chronic Sick in Bombed Towns

SIR,—Sir Frederick Menzies has made an eloquent plea on behalf of the "chronic sick" patients in the institutions of our towns that have been subjected to enemy bombing, urging that prompt and energetic measures should be taken for their removal to places of greater safety. I wish to add a plea for the still larger numbers of "chronic sick" patients living in their own homes in those areas. Their danger may not be as great as that of those receiving institutional care, but they are subjected to unnecessary risks and to privations and discomforts due to war conditions. Early in the war you published a letter from me pointing out the fact that no special steps had been taken to minimize the risks they ran. At that time there were no A.R.P. shelters for those unable to make use of the Anderson or the public shelter; no hope of evacuation to safer areas; no respirators available for those unable to use the ordinary civilian one; no special rationing. Nor can we forget the coal muddle during the first severe winter, when many were without coal for several weeks and some were reduced to breaking up their scanty furniture to provide heat for cooking and for warmth. Not till eighteen months had passed was there any alleviation of their lot, and then only in a few directions. At the same time a word of praise is due to many of the air-raid wardens, who gave special care and encouragement to the crippled and bedridden during air raids.

Much still remains to be done before we can feel satisfied that the "chronic sick" are receiving the care that is their due. The general practitioner is, in the main, responsible for their medical care in their homes; war risks are the responsibility of the community, and in these cases of the local authority. A census of the "chronic sick" is needed first of all. As a matter of fact, where there is an efficient A.R.P. service the necessary data could no doubt be obtained from the air-raid wardens. Every individual patient should be visited and assured that his safety and comfort are not being neglected. Many of the sick poor live lonely lives, occupying a single room, often in an upper story, and steps should be taken to persuade them to remove to a room on the ground floor. The provision of indoor shelters for all such sick persons is essential, and where the patient has no friend to help him to get into his shelter during air-raid alarms a warden should be available to help him and to stand by and cheer him.

On no section of the community does the system of rationing bear more harshly than the sick poor; when the rations are obtainable only with difficulty the sick poor may have to go without their share, and they, for various reasons, are often unable to get a fair share of unrationed foods as well. Many of them suffer from impaired appetite and digestion, and it is most unfair that arrangements have not so far been made to increase the amount of some of their rations. I submit that special issues of such articles as eggs, oranges, tomatoes, etc., should be made available to them as well as to children. For those, too, who are willing—though these are probably a minority—evacuation to a safer area where special care should be provided for their comfort is the best solution of the problem.—I am, etc.,

Manchester, Aug. 10 ARNOLD GREGORY.

Lectures on First Aid

SIR,—I have recently attended a lecture in a country district by a medical officer of the Ministry of Health on what was called "Wartime First Aid." The lecturer divided treatment into four parts—haemorrhage, asphyxia, unconsciousness, and fractures. The tourniquet was mentioned and condemned, compression of the femoral and subclavian arteries being advised. Apart from the difficulty of finding and compressing the femoral artery in a big muscular man, it will be impossible to compress it efficiently while the patient is being lifted on to the stretcher, conveyed to and carried in the ambulance, especially in the upper compartment, while on the stretcher with its slung bed, and finally taken out of the ambulance and carried along corridors to a ward. The same applies to compression of the subclavian, and rather more so, as the patient will be lying down. A rubber tube, or preferably a band three or four feet long, with tape at one end, is all that is required, and it is a pity that the Government cannot see its way to supply every air-raid warden and certain other A.R.P. personnel with one. It is not foolproof, but with proper instructions and careful watching it is the safest thing.

Splints came in for general dismissal, especially the long Liston. Possibly in large towns with many casualties there may be no time to splint a limb, but in scattered country districts the case is different. Fractured femurs, especially if compound, in dirty surroundings are major casualties, as was discovered rather late in the last war, and the mortality and morbidity from them until this was recognized were very considerable.

Shock was included under the head of unconsciousness, but shock should have been recognized and treated before unconsciousness arises, if it does at all; unconsciousness generally means something more serious than shock.

It is to be remembered that roads may be blocked by troops or craters, and cases may have to be brought across country, taking time and causing jolting, and there is no question that the "old-fashioned" methods, as the lecturer called them, of the British Red Cross and St. John will still be carried out and many lives saved thereby.—I am, etc.,

HOWARD M. STRATFORD, F.R.C.S.Edin.

Beckley, Sussex, Aug. 9.

Penetrating Wounds of the Abdomen

SIR,—Having had some experience of penetrating wounds of the abdomen, I was glad to see this straightforward report of a case published by Mr. Geoffrey Parker, though at the same time a little surprised that it should still be thought necessary to point to its lesson.

For the first ten months of the last war I was surgeon to a base hospital at the base in Mesopotamia, and owing to difficulties in transport we seldom got cases in hospital under three days from the time of their being wounded. Of the few abdominal cases we did get, all died (peritonitis, etc.) save one, and he had saved himself by developing a faecal fistula in the caecal region. All the others had died either early from shock or bleeding, or from peritonitis during transit to the base. None was operated on. I am told that something of the same sort has been happening in Africa. At the base hospital it was too late, and, moreover, we were still labouring under the old rule of "Leave 'em alone."

But towards the end of 1915, during the siege of Kut, I had the same equipment but was now in the "front line," and so was able to receive the wounded often within a few minutes of their being hit. Indeed, as soon as we realized the importance of early operation, special arrangements were made to get "abdominals" in quickly, which also gave one a chance of operating at once on some cases of progressive internal bleeding (of which the pulse is the best indicator) and ligaturing the torn mesenteric vessels, apart from the damage to the gut itself.

As regards the point under review, I soon came to realize the danger of abstaining from operating on cases where one could

not be certain that penetration had not occurred, for even the most innocent-looking entrance wounds, without exit wounds, might be accompanied by extensive damage to the gut, and I emphasized this in describing some cases.[1 2] Fraser and Bates, Russell, Gordon-Taylor, and others have also stressed the danger of leaving such cases alone. Indeed, "when in doubt, do a laparotomy" should be an axiom of surgical practice with those who have to do with these cases.—I am, etc.,

C. H. BARBER,
Lieut.-Colonel I.M.S. (ret.).

Thame, Aug. 8.

REFERENCES

[1] *Lancet*, Jan. 20, 1917.
[2] *British Medical Journal*, Jan. 6, 1917.

Mechanism of Inflammation

SIR,—Your leader (March 1, p. 321) on factors that participate in the process of inflammation has led me to draw attention to the following unconsidered situations. When a tissue is injured, resulting in a haematoma without breach of the skin, a serum can be extracted which greatly promotes the extent of the growth and morphological robustness of bacteria cultured therein, such as streptococci. Serum extracted from a twenty-four- or forty-eight-hour-old haematoma produces this effect when added to tryptic broth or blood agar plates as compared with controls. It appears that the inflammatory lysis which is an essential antecedent to repair promotes a process of autodigestion in the tissues affected, which is, in effect, analogous to that technically adopted in the addition of trypsin to the protein of a broth culture.

Such is a brief for the earliest possible sterilization of wounds before they become homologous culture media. This appears also to account, in part, for the high resistance of immobilized limbs, in that absolute rest entails optimum apposition of the histological elements of wounded tissues. This, theoretically, provides against repeated acts of lysis, which are made necessary by new adjustments called forth by fortuitous movements. A rule might be promulgated that bacterial fixation in wounds is, for lytic reasons, proportional to the time lost in sterilization.

In regard to the determination of protective leucocytosis in wounds, globulin agencies used for promoting phagocytosis have proved in my hands to lead on local use in wounds to a gross leucocytic exudate. This may be associated with a surrounding areola of hyperaemia and turgescence, suggesting that this agent should be diluted with normal saline before application. If an antitoxic serum with polyvalent properties, such as diphtheritic serum, be mixed with the globulin the acute inflammatory reaction is lessened, but the phagocytic process is still active. These recommendations are advanced as of possible value in adjunctive treatment of wounds emerging from the present war. The method just described was first tested in intractable ulcers with heaped-up rims resulting from a mixed infection by haemolytic types of both staphylococci and streptococci. Where these ulcers were confluent or were delayed in healing by the poor "subsoil" over the tibia, healing did not occur until the above measures were adopted. The infection described was caused by multiple sand-fly bites, which were later further complicated by carelessness in washing a purulent eczema of a type regarded as incurable in dogs, and for which the latter have always to be shot.—I am, etc.,

FRANK TRINCA.

Melbourne, May 25.

Sulphapyridine in Brucella abortus Infection

SIR,—I think Dr. Whittingdale, in his treatment of a case of *Brucella abortus* infection with sulphapyridine, may be doomed to disappointment unless he takes the precaution of repeating the course of treatment, as described by Richardson (*Lancet*, 1938, I, 495), after intervals of three and six weeks, in order to avoid relapses.—I am, etc.,

P. R. BOUCHER.

Winfrith, Dorset, Aug. 10.

Sulphonamides and Sulphur

SIR,—The observations made by Dr. A. D. Hodges in your issue of July 26 (p. 139) are of considerable interest to those of us whose clinical observations have not lent support to the widely held views concerning the supposed association of sulphonamide cyanosis with salines or sulphur.

It might be pointed out that the administration of magnesium sulphate is not a means of giving sulphur, as Dr. Hodges appears to suppose, any more than can the phosphorus intake be increased by giving phosphates, glycerophosphates, or hypophosphites. If the administration of magnesium sulphate during sulphonamide therapy increases the incidence of sulphaemoglobinaemia, it must do so in some other way than acting as a source of sulphur, such as by hastening the passage of sulphur-containing foods along the alimentary tract before absorption of the amino-acids has taken place, and so resulting in an increased production of hydrogen sulphide in the gut from bacterial decomposition of the food proteins, where the more liquid contents may provide a more favourable medium for bacterial growth, as suggested by Archer and Discombe. The prohibition of eggs and onions during sulphonamide therapy is irrational, as it would seem doubtful if with normal digestion the production of hydrogen sulphide is decreased by their exclusion, and in any case other articles of diet contain as much sulphur as, or more than, an egg or two.

Sulphaemoglobinaemia is much less common during sulphanilamide treatment than is methaemoglobinaemia, and the latter is transient and may be prevented by the administration of methylene blue. With sulphapyridine and sulphathiazole sulphaemoglobinaemia is so rare that it can be ignored. Moreover, the exact nature of the association between sulphaemoglobinaemia or methaemoglobinaemia and cyanosis is obscure, and the apparent absence of both of these abnormal blood pigments in some cases of sulphonamide cyanosis has led to the view that the formation of a coloured pigment from the sulphonamide may be concerned. I suggest, therefore, that the question of salines and sulphur during sulphonamide treatment is of little importance, and, in fact, the cyanosis itself has received a degree of attention which is undeserved. It is unfortunate that the undue attention paid to cyanosis has been associated with inadequate realization of the importance of other aspects of sulphonamide toxicosis, such as the deposition of crystals in the urinary tract during therapy by sulphapyridine and sulphathiazole, and a fear of agranulocytosis resulting in suboptimum dosage of sulphonamides in the early stages of their administration, leading in many cases not to a lesser but to a greater danger of this form of blood dyscrasia.

In answer to Dr. Hodges's question, the formation of sulphaemoglobin has been studied both *in vivo* and *in vitro*, using, however, sulphur in an available form—that is, as the element or as a sulphide. Among other items which I feel are of practical importance in connexion with sulphonamide therapy are: (1) In proportion to body weight children tolerate sulphonamides better than adults. (2) Whereas all sulphonamides are specific for infections by the haemolytic streptococcus, sulphathiazole or sulphapyridine are the only effective drugs against the non-haemolytic streptococci. (3) Sulphathiazole frequently proves strongly active against staphylococci. My own experience, including experiments on myself, has been entirely consistent with a number of these views.—I am, etc.,

J. T. S. GIBSON.

London, Aug. 11.

Lack of Calcium

SIR,—With regard to the letter by Drs. Graham and Burrows (August 2, p. 176), I should like to point out that osteoporosis is generally considered to be due to a vitamin D deficiency. One of the cases reported by Meulengracht (*Acta med. scand.*, 1937, **92**, 584) had actually had a satisfactory calcium intake. The history of these cases frequently reveals an unbalanced diet owing to some stunt dietetic regime. The fifteen to twenty million people who depend on the customary diet and whose calcium intake is supposed to be below requirements should show some "unsatisfactory condition of the bones."

In conclusion I should like to say that Major Lloyd George stated in Parliament on August 6, in reply to a query by Sir Ernest Graham-Little, that the fortified loaf does not contain added calcium. I hope the matter is now finally disposed of.—I am, etc.,

I. HARRIS.

Liverpool, Aug. 8.

SIR,—Dr. Harris in his recent letter defies anybody to produce evidence of calcium deficiency in adults. This is difficult, since minor deficiencies usually cause only slight disturbances, which usually pass unclassified.

During the past few months I have seen eight women in late pregnancy with varying degrees of oedema—five of legs and feet only, the other three more generalized. In all of these cases the blood pressure was normal or subnormal. In none of them was there any evidence of anaemia or of cardio-renal or venous damage or disturbance. Calcium with vitamin D was given by injection to three of them with a certain degree of improvement.

There have also been during the past few weeks quite a large number of patients attending surgery with severe reactions to insect bites—huge blisters and a great deal of swelling and inflammation. There may, of course, have been a particularly poisonous type of midge about, but calcium deficiency may also be a contributory cause. Unfortunately I have no scientific figures to back my contention.—I am, etc.,

London, S.W.16, Aug. 12. HARRIS AVERY.

Thirst at Sea

SIR,—In Sir Leonard Rogers's letter (August 9, p. 211) there is an obvious fallacy in his suggestion that sea-water might be made potable by precipitating chlorides by chemical means. This would leave the "saline" content undiminished in terms of numbers of molecules present, and increased in terms of percentage of "saline" in solution. Thus, $AgNO_3 + NaCl = AgCl + NaNO_3$: or 59 grammes NaCl = 85 grammes $NaNO_3$. That means that sea-water (approximately 3% NaCl) would now become 4.5% (approximately) $NaNO_3$, and I submit that a solution of such strength might well be more harmful to the consumer than the original sea-water.

Nitrates of the alkalis in weak solution are well-known diuretics. Strong solutions of any salt irritate the gastro-intestinal tract, and Cushny (*Pharmacology and Therapeutics*, 1924, p. 300) has stated that this non-specific effect may be reinforced by some specific irritation in the case of nitrates, and that isotonic solutions of nitrates are but slowly absorbed by the bowel. A 4.5% solution of sodium nitrate would be even more slowly absorbed (if at all), and would likely produce nausea, vomiting, or diarrhoea, and thus inaugurate a vicious circle.

Mr. Biske's suggestion to use diluted sea-water to alleviate thirst is more worthy of experiment. But one could argue *a priori* that any addition of salt to the body (oral, rectal, etc.) would lead eventually in those deprived of water to an increased sensation of thirst, since this varies directly with the concentration of the blood. In haemorrhage, extensive burns, severe vomiting, cholera, etc., both salt and fluid are lost, and the rationale of the use of isotonic solutions is sound, as it is also in heat-stroke, where the body is deprived of much salt as well as fluid in sweat. There has been no loss of minerals in cases of thirst at sea unless these unfortunate people are adrift under a tropical sun.

The problem might be solved by the use of a copper or metal still, easily portable, and heated on the principle of a primus stove. The distress of the dry cracked mouth and tongue might be relieved temporarily by glycerin and lemon pastilles, but sugar-containing sweets should not be allowed.—I am, etc.,

Hull, Aug. 10. R. HARDY.

Peripheral Nerve Injuries

SIR,—As you are no doubt aware the Ministry of Health has established three centres in England and two in Scotland for the investigation and treatment of patients suffering from peripheral nerve injuries: one of the centres is at the Wingfield-Morris Orthopaedic Hospital, Oxford.

Much useful information could be gained from the examination of men who sustained nerve injuries during the last war, but unfortunately the Ministry of Pensions has no separate list of these patients, and it is therefore impossible to get into direct touch with them. It is likely that many general practitioners have among their patients a few who have had nerve injuries. Would any doctor in the Oxford area who happens to come across such a case be kind enough to help us by asking the patient, should he be willing and able to spare the time, to attend here for examination? The best times for attendance are Monday and Tuesday afternoons. A small sum of money is available for paying travelling expenses.—I am, etc.,

Wingfield-Morris Orthopaedic Hospital, Oxford, Aug. 12. H. J. SEDDON.

Obituary

SIR ALFRED RICE-OXLEY, C.B.E., M.D.

Sir Alfred Rice-Oxley, who was formerly Physician-in-Ordinary to Princess Beatrice, died on August 10 at the age of 85.

Alfred James Rice-Oxley was educated at Doncaster Grammar School, Balliol College, Oxford, and the London Hospital. He qualified M.R.C.S. and L.S.A. in 1877, and in 1882 proceeded to the M.B. and the M.R.C.P. In 1901 he took the M.D. of Dublin University. At the London Hospital he gained scholarships in human anatomy and clinical medicine, and the gold medal in clinical medicine. After qualifying he was house-physician at the London Hospital and at the Radcliffe Infirmary. He was honorary medical director and acting physician to the Princess Beatrice Hospital for Wounded Officers and the Dorchester House Hospital for Wounded Officers; he was also physician to St. George's and St. James's Dispensary. Sir Alfred was a member of the Council of the British Medical Association from 1910 to 1912. Subsequently he served on the Central Ethical Committee and the Committee on Lunacy Law and Mental Disorder.

Among other public offices Sir Alfred was president of the West London Medico-Chirurgical Society, vice-chairman of the Princess Louise Kensington Hospital for Children, and chairman of the Society of Yorkshiremen in London. He was a member of the Order of Isabella the Catholic, and in 1927 received the Légion d'Honneur. He was three times Mayor of Kensington, and in 1922 was knighted. Sir Alfred was especially well known for his municipal work: he was a J.P., a trustee of the Campden Charities, president of the Kensington Council of Social Services, and chairman of the Leighton House Society. In 1923 Lord Phillimore, on behalf of the Royal Borough, presented him with his portrait in recognition of his many public services.

Lady Rice-Oxley died in January of last year. There were four sons of the marriage, of whom the second, Dr. D. G. Rice-Oxley, is Surgeon-in-Ordinary to Princess Beatrice.

The following is an appreciation from a former colleague:

Alfred Rice-Oxley practised for so many years in Kensington, and was so prominent in local government affairs there, that few now remember that he originally began practice across the river—I think in Clapham or Wandsworth. For all his long experience of public affairs, he retained a certain appearance of diffidence in putting forward his views, both in public and in private; this was probably due not so much to indecision or woolly thinking as to innate courtesy towards other people, though it did give the impression sometimes that he hardly knew his own mind. He had great sympathy with, and a benevolent disposition to, his younger colleagues in practice; and he was often known to offer words of encouragement just when they were most needed. Mayor of the Royal Borough of Kensington for three years (1919-22), he remained a valued member of the Public Health and Maternity Committee there long after he could well have pleaded that he was due for a respite. The list of his public activities is indeed a lengthy one, and it may safely be said that few members of the profession have done so much in local politics and at the same time made so few enemies. He was not a fluent, nor even a good, speaker; but always created conviction of his complete honesty and disinterestedness among his hearers—no slight matter when political feelings ran

high, though as a rule he steered as clear as he could of controversial topics. He was very proud of his Yorkshire origin and ancestry, and especially of Doncaster, where he had his boyhood's education. No account of his career would be complete without mention of the mutual devotion of Sir Alfred and his wife, who died only a year and a half ago after well over fifty years of happy married life. She helped him in his public duties as well as in private life, with a gracious presence and personality which Kensingtonians were not slow to recognize and appreciate.

JOHN MORGAN O'MEARA, M.D.

We regret to record the sudden death on August 10 at Luton, from cerebral haemorrhage, of Dr. J. M. O'Meara. He was 59 years of age.

John Morgan O'Meara was born in Lincolnshire, and received his medical education at University College, qualifying M.B., B.S. in 1905 and proceeding to the M.D. of London University three years later. After holding house appointments at Wolverhampton General Hospital and Tottenham Hospital he started in general practice at Luton, where he was soon joined in partnership by his brother, Dr. Hubert O'Meara. During the war of 1914-18 Dr. O'Meara volunteered for service in the R.A.M.C.(T.). He served in France, Gallipoli, Egypt, and Palestine until the end of the war, and returned home with materially impaired health from which he never fully recovered. He acted for many years as honorary medical officer on the staff of the Bute Hospital, Luton, and was secretary to the Medical Advisory Committee of the hospital. He relinquished this post when he was appointed in 1932 part-time medical officer to what is now known as St. Mary's Hospital. Nearly two hundred in-patients came under his care, and they now became the chief interest in his life. He gave devoted service to the care of these people, among whom there were many old, infirm, and acutely ill. He became a member of the British Medical Association in 1910, and was a regular attendant at divisional and branch meetings. He served on the Bedfordshire Panel Committee from its inception until the time of his death.

Outside his professional career Dr. O'Meara's chief interest was centred in cricket. At one time he played in a local team; he was an authority on the rules of the game and assisted in coaching the Luton Modern School, at whose first-eleven matches he was invariably present. He was a bachelor, and his life was devoted to his patients, who will miss him greatly. He was in harness to the end, being actually out on his professional rounds a few hours before his death.

W. PARRY MORGAN, M.D.

V. Z. C. writes: The late Dr. William Parry Morgan was a man whose modest and retiring disposition tended to prevent the immediate recognition of his many talents. He had an expert knowledge of mathematics and physics, which, at an early stage in his medical career, helped him to devise an improved apparatus for inducing artificial pneumothorax and led him to conclude that it was safe to induce bilateral partial pneumothorax. His work in proving the possibility and safety of this latter procedure did not at first gain immediate acceptance, and now that the technique is well established it is only just that Parry Morgan's pioneer work should be recognized. He was very fond of music, and although almost entirely self-taught was no mean performer on the piano. He was conscientious almost to a fault, was endowed with a fine sense of humour, always proved himself a faithful friend, and was generally beloved.

[An obituary notice of Dr. W. Parry Morgan was published in the issue of July 12.]

SIR FREDERIC STILL

Dr. E. BAINES writes: I only noticed yesterday the obituary notice of Sir Frederic Still. I thought it was most sympathetically done and gave a great idea of the man. Two points which may seem unimportant, but which, to my mind, marked the man, were that he went to Caius hoping to start natural science at once, and was deeply disappointed that, having taken a scholarship in classics, he was required to take a classical degree. Undaunted, he worked at classics and took a first class in his tripos. Then he took a second course and came out in the first class for his natural science.

Dr. MUNGO BRYSON, who died in an Edinburgh nursing home on July 14, had practised for many years at Thornhill, Dumfriesshire. He studied medicine at the University of Glasgow, graduating M.B., C.M. in 1890. At Thornhill he was physician to the district isolation hospital and medical officer to various institutions, including the Scottish Education Department and the Post Office. He had been secretary of the Panel Committee for Dumfriesshire, and in 1924-5 held office in the British Medical Association as president of the Border Counties Branch.

Dr. JOHN ANDERSON SMITH, for fifty-four years a member of the British Medical Association, died on July 16. He had long practised at Willesden Lane, Brondesbury, N.W. Born at Hull in 1862, and educated at Rossall and St. Bartholomew's, Dr. Anderson Smith took the M.R.C.S. and graduated M.B.Lond. (with honours in obstetric medicine) in 1886, proceeding to the M.D. two years later. His early appointments were those of house-physician at the Brompton and the City Road Hospitals, and in 1887 he was appointed surgical and medical registrar at the North-West London Hospital. He was for many years district medical officer to the Metropolitan Water Board, honorary medical officer to the Kilburn and St. John's Wood Dispensary and Edgar Lee Home for Cardiac Diseases, and a member of the medical staff of the Willesden Cottage Hospital and of St. Monica's Home.

Dr. HUGH CAMPBELL FERGUSON, who died on July 28 at Wimbledon, realized in many years of active and successful work his early ambition to serve his profession and the community in the general practice of medicine. Graduating M.B., Ch.B. (with commendation) in 1899 at the University of Glasgow, he proceeded to the M.D. degree in 1903. In the interval he devoted himself to a long course of clinical and pathological study at the Glasgow Royal Infirmary and at the Sussex County Asylum, in both of which institutions he held resident posts. Thereafter his professional record is one of general practice in South London and Wimbledon, and in this he found both an opportunity for service and an instrument of self-development and education. To his professional equipment he added the personal qualities which invite and retain confidence—thoroughness, efficiency, kindliness, interest, and good will. Never of robust physique—for the last four years he had suffered from an incurable illness—he was yet capable of much hard work, and he well merited the trust and affection of those who looked to him for help and guidance. He had been chairman of the medical recruiting board, but failing health compelled him last March to relinquish duties which he had carried out with great tact and efficiency. To his colleagues Ferguson cultivated the loyalty and generosity which accord with the best traditions of the profession, and his intimate friends knew him as a man and a brother with a kindly, humorous, and philosophic outlook on life and affairs; he appreciated good talk and made his contribution to it. At home he enjoyed a true comradeship and valued this highly in his life and work. He is survived by his widow, his son, who is a member of the profession, and a married daughter.

We regret to announce the death on July 28 of Dr. FRANCIS GEORGE DOBSON, D.S.O., medical officer of health for Beverley Rural District Council. Dr. Dobson qualified M.B., Ch.B. at Leeds University in 1906, and was for a time house-surgeon and also anaesthetist at the General Infirmary at Leeds. During the last war he was officer commanding the 1/2nd W.R. Field Ambulance, B.E.F., and held the rank of lieut.-colonel, R.A.M.C. He had been medical inspector of school children

under the Leeds Education Committee, and at the time of his death was honorary medical officer to Beverley Cottage Hospital. Dr. Dobson was the son of the late Dr. Joseph Dobson, who practised in the Burley district of Leeds for many years.

We regret to record the death on July 31, as the result of an accident, of Dr. WILLIAM MURDIE of Wark-on-Tyne. He was the son of the late Mr. Alexander and Mrs. Murdie of Stronchrubie, Sutherlandshire, and was educated at the University of Edinburgh, where he graduated M.B., Ch.B. in 1907. He was medical officer and public vaccinator for the 5th District, Bellingham, and medical officer to the Post Office. His contributions to medical literature included papers on vaccines in general practice (jointly), observations on infection by bacillus of tubercle (jointly), and a case of camphor poisoning, all of which were published in the *Medical Press and Circular*. He had been a member of the British Medical Association since 1922.

We regret to announce the death on August 1 of Dr. FRANK HAYDON in his eightieth year. He received his medical education at Westminster Hospital, and qualified L.R.C.P. in 1891. He specialized in ophthalmology and for five years was assistant surgeon at the Westminster Hospital; he had held the posts of clinical assistant at the Royal London Ophthalmic Hospital and ophthalmic surgeon to King Edward's Schools. For a time he was secretary to the Court of Examiners of the Society of Apothecaries of London, and for forty-five years he was oculist to the Southern Railway. Dr. Haydon was the author of several books, including an *Ophthalmic Atlas for Recording Pathological Conditions of the Fundus by Means of Superimposed Layers of Colour, Statistical Eyesight Tables*, and *Railway Test Type Case*. He had been a member of the British Medical Association for forty years.

Dr. HORACE SILVA DRABBLE, who died suddenly on August 4, was educated at Wesley College, Sheffield, and the University of Sheffield; he qualified M.R.C.S., L.R.C.P. in 1921 and started practice in that city. Later he became interested in anaesthetics, and was made honorary anaesthetist to the Royal Hospital, Sheffield, where he gave many years' devoted service. He took the D.A. in 1936. Dr. Drabble was an unusually competent anaesthetist, and was very popular with all his surgical and medical colleagues, as well as with the students under his supervision. He was a very likeable man with a charming personality. A keen golfer, he was one of the oldest members of the Hallowes Club. When war broke out in 1914, although only 18 at the time, he enlisted as a private in the Sheffield City Battalion, and later was given a commission and went to France as a combatant officer with the rank of lieutenant in the York and Lancaster Regiment. The sudden death of his father late in 1936 came as a great shock, and precipitated a nervous upset which necessitated a rest from work for some time. He returned to practice, however, and, so far as any of his friends knew, was in the best of health and spirits just before his death. He will be deeply missed by a large circle of friends. He had been a member of the British Medical Association for thirteen years.

We regret to record the death at the age of 75 of Dr. WILLIAM MACCALL BOYD, at Largs, Ayrshire, on August 5. Dr. Boyd qualified M.B., C.M. at Glasgow in 1890, and joined the British Medical Association in 1894. He is survived by his wife, one daughter, and two sons.

Dr. SAMUEL LYLE, C.B.E., whose death took place on August 6 at Stockton-on-Tees, had been in practice in the town for thirty-nine years. Dr. Lyle, who was a native of Northern Ireland, graduated M.B., Ch.B. at Edinburgh University in 1901. During the last war he served with the R.A.M.C. in Gallipoli and Bulgaria, and in this country at the Military Hospital, Grantham. He was Ministry of Pensions Commissioner, East Central Region, and for his work in this capacity was awarded the C.B.E. He was honorary surgeon to Stockton and Thornaby Hospital from 1913 to 1930, and from then until his death was honorary consultant surgeon to that hospital. A keen member of the British Medical Association, he took a great interest in the work of the local Division. He had been a member of the Local Medical War Committee since it was first formed. Lyle took an active part in the civic life of Stockton, and he was a Justice of the Peace from 1930. He was always interested in the local cricket and football clubs, and was well known in racing circles in the North-East, being chairman of the Stockton Race Committee. By the death of Dr. Lyle, Stockton loses a medical practitioner of sound judgment, a genial personality, and a true sportsman.

Dr. SPENCER VERDON-ROE died suddenly after an operation on August 7. Spencer Verdon-Roe was educated at Cambridge and St. Bartholomew's Hospital, qualified M.R.C.S., L.R.C.P. in 1897, and took the M.B., B.Ch. in 1898. After qualifying he was house-surgeon to the Radcliffe Infirmary, Oxford, and clinical assistant in the department of diseases of the throat, St. Bartholomew's, and in the ophthalmology department of the West London Hospital. He was subsequently assistant school medical officer in the L.C.C.

Miss MARY CAMPBELL HORNER, whose death at Limavady, Co. Derry, was recently announced, was educated at Queen Margaret College, Glasgow, and took the Scottish triple qualification in 1894. Medical missionary work became her life interest, for she served for thirty-one years in the Church of Scotland Mission Hospital at Mukden, Manchuria, before retiring in 1927. She initiated and built up, with Dr. Ethel L. Starmer, the women's hospital, the maternity school, and the babies' home, institutions which reflected her successful work on behalf of Chinese women and children and missionary workers.

Dr. JOHN TOPHAM SPINK, who died recently at Harrogate, was for many years a general practitioner at Otley. He was a student of the Yorkshire College at Leeds, and, after clinical training at the General Infirmary at Leeds, obtained the Scottish triple qualification in 1892. Dr. Spink was for a considerable time medical officer to the Child Welfare Centre at Otley. He was one of the oldest members of the Royal Wharfedale Lodge of Freemasons, in which he held office as Worshipful Master in 1902-3. He had been a member of the British Medical Association for forty-two years.

The following well-known medical men have died abroad: Dr. ALBERT GRAEME MITCHELL, professor of paediatrics at the University of Cincinnati College of Medicine since 1924, co-author with Dr. J. P. Crozer Griffith of *Textbook of Diseases of Infants and Children*, aged 52; and Dr. JULIUS FRIEDENWALD, emeritus professor of gastro-enterology at the Medical School of the University of Maryland, aged 74.

Universities and Colleges

UNIVERSITY OF OXFORD

At a Congregation held on July 26 the following degrees were conferred:

D.M.—A. H. Hunt.

M.Ch.—H. Rees.

B.M.—A. P. D. Montgomery, *R. F. G. Barker, F. G. Beilby, A. G. A. Albers, J. V. S. A. Davies, J. W. Gerrard, J. P. M. Tizard, C. G. Whiteside, *A. J. Wilmot, H. W. Davies, R. T. Campbell, L. T. Scott, J. F. Monk, R. H. Percival, *J. R. Tiller, Pamela M. Blake.

* In absentia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At an ordinary meeting of the Council of the Royal College of Surgeons of England, held on July 31, with Sir Alfred Webb-Johnson, President, in the chair, Prof. Alexander Primrose was appointed representative of the College at the centenary celebrations of Queen's University, Kingston, Ontario, and Surgeon Rear-Admiral G. Gordon-Taylor was appointed delegate of the College to attend the thirty-first Annual Clinical Congress in Boston, U.S.A., as the guest of the American College of Surgeons.

Diplomas of Membership were granted, jointly with the Royal College of Physicians of London, to the candidates whose names appeared in last week's issue in the report of the meeting of the Royal College of Physicians of London.

Diplomas in Ophthalmic Medicine and Surgery (nine) and in Medical Radiology (three) were granted, jointly with the Royal College of Physicians of London, to the candidates whose names appeared in last week's issue in the report of the meeting of the Royal College of Physicians of London.

The Services

COLONEL COMMANDANT, R.A.M.C.

Lieut.-General Sir J. A. Hartigan, K.C.B., C.M.G., D.S.O., retired pay, late R.A.M.C., has been appointed Colonel Commandant, from August 8, 1941, in succession to Lieut.-General Sir H. B. Fawcus, K.C.B., C.M.G., D.S.O., D.C.L., retired pay, late R.A.M.C., who has relinquished the appointment on account of ill-health.

R.A.F. AWARD

The King of Yugoslavia has conferred the Order of the White Eagle, 5th Class, on Flight Lieut. William Patrick Griffin, R.A.F.O., in recognition of valuable services rendered in connexion with the war.

MENTIONS IN DISPATCHES

The following have been mentioned in dispatches: Temporary Surgeon Lieut. H. A. D. Doyle, R.N.V.R. (H.M.S. *Ladybird*), for courage and devotion to duty during operations in the Mediterranean, and Temporary Surgeon Lieut. M. G. Low, R.N.V.R., for good services in the successful raid on the Lofoten Islands.

CASUALTIES IN THE MEDICAL SERVICES

ROYAL ARMY MEDICAL CORPS

Wounded

Captain John Hortas Jackson.
Captain Bethel Lapedus.
Captain Robert Norman Seed.

DEATHS IN THE SERVICES

Colonel LANCELOT PAXTON MORE, R.A.M.C. (ret.), died in a London nursing home on July 19, aged 72. He was born at Rothwell, Northants, on March 20, 1869, and was educated at the University of Edinburgh, where he graduated M.B., C.M. in 1891, serving as assistant demonstrator of pathology. Entering the Army as surgeon lieutenant in 1892, he became lieutenant-colonel in 1915, brevet colonel in 1917, colonel in 1918, and retired in 1922, having been on half-pay from April to October, 1920, on account of ill-health. He served on the North-West Frontier of India in the campaign of 1897-8, receiving the Frontier medal with a clasp, also the clasp for the Tirah campaign. He had been a member of the British Medical Association for twenty-four years.

Colonel ARTHUR HUGH MORRIS, C.I.E., C.B.E., R.A.M.C. (ret.), died at Boscombe on July 6, aged 69. He was born on February 26, 1872, received his medical education at St. Bartholomew's Hospital, qualified M.R.C.S., L.R.C.P. in 1894, and took the D.P.H. in 1905. Entering the Army as surgeon lieutenant in 1896, he became lieutenant-colonel in 1915, and retired as colonel in 1922. He served in British Somaliland in 1903, in the hospital ship *Hardinge*, receiving the medal with a clasp, and in the war of 1914-18, when he was mentioned in dispatches, receiving the C.B.E.; and in Mesopotamia from 1919 to 1921, receiving the C.I.E. He had been a member of the British Medical Association for twenty-four years.

Lieut.-Colonel CHARLES EDWARD WILLIAMS, I.M.S. (ret.), died at Farnham, Surrey, on July 28, aged 75. He was born on November 1, 1865, and was educated at the University of Cambridge, where he graduated M.B., B.Chir. in 1890. Entering the I.M.S. as surgeon lieutenant in 1893, he became lieutenant-colonel after twenty years' service, and retired in 1923. He served in the North-West Frontier campaign of 1897-8 and received the Frontier medal with two clasps. Most of his service was spent in Burma, where he was appointed a civil surgeon in 1896. He was appointed Sanitary Commissioner in 1898, and held that post until his retirement. He was a member of the British Medical Association for twenty years and was a member of the Central Council in 1904-5.

Dr. J. J. Bittner of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, U.S.A., has been awarded the Alvarenga Prize for 1941 for his studies on cancer. This prize is given each year by the College of Physicians of Philadelphia on the anniversary of the death of Pedro Francisco DaCosta Alvarenga, who died on July 14, 1883, and under whose will the prize was established, to the author of the work in any branch of medicine which is thought most deserving of the award.

Medical Notes in Parliament

Parliamentary Medical Committee

At a meeting of the Parliamentary Medical Committee last month, with Sir FRANCIS FREMANTLE in the chair, Lieut.-Colonel W. S. C. COPEMAN, in an address on rehabilitation, spoke of the work done in the Army in respect of both medical and surgical cases in shortening the period of treatment and convalescence and in counting the treatment as effective only in its single direction throughout to early future efficiency for service. He indicated, further, the application of the same change of view and practice to civil life, especially after the war, and showed the great economy, comfort, confidence, and welfare, individual and general, that should result.

Tuberculosis

Invited by Mr. RHYS DAVIES on August 6 to give statistics showing the increase or decrease in tuberculosis in England and Wales respectively for each quarter since the beginning of 1938, Mr. BROWN replied on August 7 that quarterly statistics were not available. The following table indicated the total numbers of new cases notified to local authorities or which came to notice otherwise than by formal notification during each of the three years 1938 to 1940.

	1938		1939		1940	
	Pulmonary	Non-pulmonary	Pulmonary	Non-pulmonary	Pulmonary	Non-pulmonary
England	40,109	13,759	37,607	12,283	39,363	11,335
Wales	3,096	1,129	2,943	1,000	3,184	1,047

On August 7 Mr. JAMES GRIFFITHS asked if Mr. Brown's attention had been called to the report of the Welsh National Memorial Association, indicating a deficiency of 400 beds for waiting tuberculosis cases in the Principality. Mr. BROWN replied that the Press reported that a statement was made at a recent meeting of the Welsh National Memorial Association to this effect. The question of increasing the number of beds at present available in Wales and elsewhere was under active consideration in the Ministry of Health.

Medical History of Recruits

Mr. BEVIN told Mr. Rhys Davies on August 7 that he had considered the suggestion that approved societies should be asked to supply medical boards with the medical history of men tested for service in the Army. This would not supplement the information already obtained to an extent sufficient to counterbalance administrative difficulties in its adoption. Every man was informed that the board would give careful consideration to medical evidence regarding any serious illnesses or disabilities, and was also asked to complete a questionary. Mr. Bevin added that, having administered an approved society, he would not place much reliance on the medical histories which such societies possessed. Arrangements had been made for notification to the medical boards of every man of military age whose name appeared on the register kept under the Public Health (Tuberculosis) Regulations. Every man examined was asked whether he had ever suffered from tuberculosis or received treatment for it or for suspected disease. Where there was reason to suspect tuberculosis the board referred the man for radiological or other special examination by the tuberculosis officer of the area in which he lived. The Medical Advisory Committee under Lord Horder had decided that it was impracticable for the chest of every recruit to be radiologically examined. Equipment and personnel to examine the results were not forthcoming.

British Dispensary at Hankow.—On July 29, Mr. LAW informed Mr. Nunn that the British Dispensary at Hankow ceased business last April owing to difficulties arising out of the closure of the Yangtse. Special efforts to help this British firm were made by the British Consuls at Hankow and Shanghai, and some shipments of medical supplies were permitted to Hankow for the dispensary. Owing, however, to great delays and to the fact that no miscellaneous goods were allowed to be shipped, the turnover became insufficient to keep the firm in business.

Condition of School Milk.—Mr. LEACH raised, on July 31, the question of the condition of milk delivered to Southport schools. He said a report of the Southport Health Department indicated that one sample of milk must have been stale before it was pasteurized. Mr. BUTLER replied that the Department of Education had communicated with the Ministry of Food, which had taken up the matter. The conditions prescribed for pasteurized milk included a bacterial standard for the milk after, but not before, pasteurization.

Grant for Soldiers' Wives during Pregnancy.—On August 5 Mr. TOM SMITH asked the Secretary of State for War whether he was aware that cases were arising of wives of Service men continuing to go out to work while in an advanced state of pregnancy in order to supplement their separation allowance; and whether he would consider the desirability of making an additional allowance of 10s. a week to all such cases on the production of a medical certificate and on the condition that the woman refrained from going out to work for a specified period. Captain MARGESSON said he was unable to accept the suggestion for a flat increase of 10s. a week in such cases, but any case in which serious hardship arose would be considered on its merits by the Ministry of Pensions with a view to the award of a war service grant of up to £2 a week. If serving in the United Kingdom the soldier should himself make an application for such a grant through his commanding officer. If he was serving abroad the application might be made by his wife through the regimental paymaster or the nearest office of the Assistance Board.

Diabetics' Food.—Major Lloyd George is advised that no further concession is necessary at present in the diet of diabetics.

Medical News

Mr. E. Rock Carling and Prof. S. P. Bedson have been elected members of the Medical Research Council in place of Prof. G. E. Gask and Prof. W. W. C. Topley, F.R.S.

The name of Dr. Wilfrid Boothby Blandy, firewatcher, Nottingham, has been brought to notice for brave conduct in civil defence.

The seventieth annual meeting of the American Public Health Association will be held at Atlantic City from October 14 to 17. Further information can be obtained from the headquarters of the association at 1790 Broadway, New York City.

The Swedish International Press Bureau reports that a board for the control of incorrect or misleading advertisements of medical preparations has recently been founded, consisting of representatives of the Royal Medical Board of Sweden, the Swedish Medical Association, the Federation of Swedish Industries, the Advertising Association, and the Newspaper Publishers' Association.

In view of the difficulty in wartime of maintaining or replacing the plant required for pasteurizing milk by the "Holder" process, the only process hitherto recognized under the various milk Regulations, licences are to be granted for "high temperature short time" pasteurization. It is understood, states a Ministry of Health circular (No. 2423), that provided the apparatus is suitable and is worked with proper care, this method will effectively destroy any disease-producing organisms in milk. The chief modifications are that the milk must be kept at a temperature of not less than 162° F. for at least fifteen seconds, and that there must be an automatic device on the apparatus to divert the flow of any milk which has not been so treated. Local authorities may obtain advice about any proposed apparatus from the National Institute for Research in Dairying, Shinfield, near Reading.

Although the money collected by the British Red Cross Society and St. John Fund has now reached a total of some £6,500,000, five-sixths of this has already been spent, and an additional £1,500,000 is necessary if the Fund is to meet the ever-growing demands that are made upon it. It is therefore proposed to develop the penny-a-week scheme, which has been so successful in organized industry, by house-to-house collections throughout the country. In an appeal for active help from women in carrying out this new scheme, the Duke of Gloucester pointed out that there were ten million houses in this country, and if only one occupant in each gave a penny a week the Fund would benefit by a further £2,000,000 a year.

Private generosity and the enterprise of the Royal Sussex Hospital, Brighton, have combined to provide what amounts to domiciliary massage and electrical treatment for those patients of the hospital who, because of physical infirmity or the expense of the journey, are unable to attend at the hospital. A motor-van equipped with all the apparatus necessary for electrical treatment, with the exception, owing to the war, of portable diathermy apparatus, has been presented to the hospital by Mrs. Herbert Latilla (founder of the Latilla Department of Physical Medicine) and her two daughters. This van, which is staffed by masseuses from the hospital department and driven by members of the W.V.S., is in daily use for visits to country districts. The hospital authorities have provided that to avoid overlapping and abuse of the service all new patients shall, in the first instance, attend at the hospital and pass through the almoner's department.

Eight residential nurseries for children who have suffered in air attack have already been established in various parts of Britain through the generosity of the Save the Children Federation of New York, and allowances have been made to some 80,000 similar children. Mr. Henry J. Allen, a former governor of Kansas, and chairman of the British Children's Aid Committee, who has been on a visit to this country, hopes to extend the help now being given, and, by increasing by another £175,000 the £75,000 already contributed, to provide at least 100 additional nurseries, where children may have a permanent home and medical treatment when necessary. It is also hoped to endow a training school for matrons and superintendents.

As promised in Circular 2395 (*Journal*, June 28, p. 979), the Ministry of Health has issued further information about the Fracture Clinics "C," which are being established under the Emergency Hospital Scheme for the out-patient treatment of fracture cases. The Ministry now states in Circular 2395A that certain hospitals are to function as Fracture Clinics "C," as well as special clinics which are to be recognized for the purpose. The arrangements for the latter are not yet complete, but the Ministry has issued a list of the hospitals within the Emergency Hospital Scheme which are to be Fracture Clinics "C." The list, which is attached to the circular, has been sent to local authorities and their medical officers of health and to all voluntary hospitals in the scheme. It is pointed out that hospitals designated as Fracture Clinics "C" should claim for the treatment of fracture cases in the same way as they claim for out-patient treatment of any other cases under the Emergency Hospital Scheme.

On production of a certificate from the doctor or midwife who has been booked to attend a confinement, or, in the case of a woman attending an ante-natal clinic, from the medical officer of health, expectant mothers will be supplied by welfare authorities with fifty coupons to buy materials for garments which should be made before the baby is born. The certificate, which should be given as soon as the diagnosis is made (usually the sixth month of pregnancy), should state the mother's name and address, her National Registration number, and the approximate date on which the confinement is expected. Double the number of coupons will be issued where a positive diagnosis of twins has been made and confirmed.

In memory of the late Sir Frederick Grant Banting a maple tree was planted on May 1 in mingled soil from several Canadian hospitals in the grounds of the Richmond Memorial Hospital, Prince Bay, Staten Island, as a part of National Hospital Day ceremonies.

According to the *Dagens Nyheter* of Stockholm one hundred cases of typhus are registered in Warsaw monthly. All of them are in the Ghetto.

Dr. Eugene M. K. Geiling, professor of pharmacology at the University of Chicago, recently received the Mendel medal of Villanova College "for his articles on the knowledge of the pituitary gland, its relations to other glands, and for his assistance in the crystallization of insulin."

The Rumanian Government has announced that the gas-masks which it is distributing free to the population are not for Jews. Should any be left over after distribution to the non-Jews the Jews may buy them at a fixed price.

The June issue of the *Annals of Internal Medicine* contains an interesting article by Dr. Thomas Parran, Surgeon-General of the United States Public Health Service, entitled "Medicine in England Now," in which he states that "we doctors in the United States should be inspired by the example of our British medical colleagues."

It has been announced that eye-shields used for industrial or A.R.P. purposes are not subject to purchase tax.

The German academy for naval doctors, which had been moved from Kiel to Danzig, has again been moved to Tubingen until its building in Danzig is ready.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

Acute poliomyelitis, dysentery, and scarlet fever have all increased in incidence during the week; that of the enteric fevers and cerebrospinal fever has declined. In Scotland a like trend has been observed, except that scarlet fever also has declined.

Acute Poliomyelitis

Since the previous week notifications of poliomyelitis have risen from 10 to 29, and the number of administrative health areas involved in England and Wales has risen from nine to sixteen. In the Slough area, although only 7 cases fall within this week's return, reports have been received that there have been 12 confirmed cases in addition to the 9 already recorded. Of these new cases 7 are in Slough itself and 5 in Eton Rural District. As regards age, 2 patients are under school age, 8 are school children, and 2 are older, one of whom is 30 years of age. The new cases have appeared in five other schools in the district. Avoidance of travelling and meeting in public places, and the use of gargles, are suggested by the public health authorities as the best means of checking further spread. Details of the incidence and distribution of the cases notified are: Buckinghamshire 7 (Slough M.B. 3, Eton R.D. 4); Radnor 3 (Presteign U.D. 1, Rhayader R.D. 2); Lancaster 2, in Manchester and in Denton U.D.; Lincoln Kesteven 2, in Grantham M.B. and in Stamford M.B.; Lincoln Lindsay 2, in Lincoln City and in Gainsborough U.D.; Stafford 2, in Stoke-on-Trent C.B.; and 1 each in Berkshire (Maidenhead M.B.), Durham (Whickham), Hertford (Hertford M.B.), Kent (Bromley M.B.), Middlesex (Staines), Norfolk (Blofield and Felgg R.D.), Oxford (Oxford C.B.), Shropshire (Shrewsbury M.B.), Yorkshire, East Riding (Kingston-upon-Hull C.B.), Yorkshire, North Riding (Stokesley R.D.), and Yorkshire, West Riding (Leeds). In Scotland cases occurred in the counties of Aberdeen 1, Ayr 2, and Stirling 1, and in the burghs of Kirkcaldy, Glasgow, and Edinburgh, 1 each.

Dysentery and Paratyphoid Fevers

Although nearly one-half of the total notified in the week occurred in one district, the number of areas affected by dysentery has risen from eleven to twenty-two; in only four were single cases recorded. The areas reporting more than 4 cases were as follows: Brecknock 69, all in Brecknock M.B.; Lancaster 23 (Blackburn C.B. 1, and R.D. 10, Whiston R.D. 5, Warrington R.D. 2, Southport 2, Manchester 1, Lancaster M.B. 1, Preston R.D. 1); Essex 7; and Surrey, Yorkshire, West Riding, and Durham 5 each. The disease is relatively more common in Scotland, involving ten areas, notably the counties of Lanark 26, Aberdeen 4, Clackmannan 4, Kincardine 2, and Orkney 4 (return for preceding week included), and the burghs of Dundee 10, Glasgow 3, Aberdeen and Edinburgh 2 each, and Airdrie 1.

More than one-half of the cases of paratyphoid fever in the whole country were recorded in Lancaster, 133; of the twenty-seven other counties affected, only seven recorded more than 4 cases—namely, Chester 43, Northumberland 10, Glamorgan 10, Warwick 8, Northampton 7, Yorks, West Riding, 6, Stafford 5. In Scotland eleven areas were affected, in five of which a single case occurred; there were 10 cases in Glasgow, and in Dundee 9, Stirling 2, and in the counties of Lanark 3, Angus 2, and Ayr 2.

No. 30

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 26.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1941. (a)	(b)	(c)	(d)	(e)	1940 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	147	8	34	1	5	153	9	35	1	3
Deaths		1	—				2	4		
Diphtheria	821	38	126	20	22	912	38	248	23	17
Deaths	20	—	2	1	—	18	2	5	2	4
Dysentery	149	4	—	*	—	29	3	61	—	—
Deaths			—	—	—			2	—	—
Encephalitis lethargica, acute	2	—	—		—	5	—	1		—
Deaths		—	—				—	1		
Enteric (typhoid) fever*	24	—	2	8	3	77	7	15	2	1
Deaths	—	—	—	1	—	—	—	—	—	—
Erysipelas		—	43	5	1		18	38	6	5
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	50	2	13	9	1	31	5	6	5	7
Measles	3,330	96	63	152	1	9,623	40	777	—	22
Deaths	2	—	—	1	—	7	—	4	—	—
Ophthalmia neonatorum	78	2	16	*	—	99	5	21		1
Deaths										
Paratyphoid A and B	254	1	33	—	—					
Deaths	5	—	—	—	—					
Pneumonia, influenzal†	455	15	6	1	—	425	15	2	3	8
Deaths (from influenza)	8	16	1	2	4	7	1	1	—	1
Pneumonia, primary			127	17				122	7	
Deaths		—		7	—		23		5	8
Polio-encephalitis, acute	2	—				5	—			
Deaths		—					—			
Poliomyelitis, acute	29	—	7		—	31	—	5		—
Deaths			—				—	—		
Puerperal fever	1	1	20	1	—	6	6	11	—	2
Deaths		—					—			
Puerperal pyrexia	104	7	16	1	—	155	13	22	—	—
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	895	34	99	42	28	1,360	41	116	34	41
Deaths	—	—	1	—	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	4,369	259	41	99	24	829	5	47	—	—
Deaths	22	2	4	—	—	5	—	3	—	—
Deaths (0–1 year)	299	23	62	18	7	270	41	59	33	18
Infant mortality rate (per 1,000 live births)									*	
Deaths (excluding still-births)	3,854	465	560	165	128	3,863	669	585	173	112
Annual death rate per 1,000 persons living			12·2	11·0	‡			11·8	11·5	9·8
Live births	4,507	336	832	399	184	5,925	971	804	327	230
Annual rate per 1,000 persons living			16·9	26·5	‡			16·3	21·8	20·1
Stillbirths	167	11	33			278	35	41		
Rate per 1,000 total births (including stillborn)			38					49		

* Includes paratyphoid A and B for Eire and Northern Ireland.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Tests for Glycosuria

E. A. d'A. writes: Is there any exact method known for testing the urine for sugar which needs no heating and yet is accurate enough that a negative result excludes with certainty the presence of any reducing substance, and thus glucose?

Income Tax

Change in Partnership: Cash Basis

A and B are in partnership, A taking two-thirds and B one-third of the cash receipts. As from April, 1940, the shares became equal, but any debts outstanding at April, 1940, were divided in the old proportion. How should the assessment for 1940-1, which is on an earnings basis, be divided between the partners?

*** On the basis applicable to 1940-1—that is, one-half each. The fact that A may be receiving *cash* to a greater extent is not material. Those receipts are the ingathering of earnings of years the income of which has already been assessed. It is true that the assessments for those years did not specifically take those receipts into their calculation, but their absence was compensated for by other receipts, the fundamental assumption being that at that time gross cash receipts and gross earnings were about equivalent.

Keep of Assistant—Assessability

"H. P. N.'s" firm employs an assistant on terms that he shall receive £420 per annum and all found. The firm pays £3 3s. a week to the lady with whom he boards. Is tax payable by the assistant on this £3 3s. a week?

*** It is common ground that if the assistant's board and lodging were provided by one of the partners it would not be assessable, and we do not see why a distinction should be made because that accommodation is provided elsewhere and at a definite, and not an estimated, cost. We assume that the liability to pay the £3 3s. is on the firm and not on the assistant; if, on the other hand, the assistant has in law made a contract with her, so that the partners are discharging *his* liability, then we fear that money so paid can be regarded as paid to the assistant, and we could not advise an appeal on these special facts. If the contract is between the firm and the landlady, we advise the assistant to appeal, though it might be well as a preliminary to put the facts before the Board of Inland Revenue, Somerset House, W.C.2.

Whole-time E.M.S. Appointment

"N. W." points out that the assessment of an E.M.S. salary as a separate item of income may involve payment of tax on the earnings as a whole at an excessive figure.

*** The illustration suggested is a case where the amount of the 1939 earnings, and therefore of the 1940-1 assessment, was £1,500, and the E.M.S. salary of £550 began as from April 5, 1940. In such a case the earned income will be assessed at £1,500 (Schedule D) plus (three-quarters of £550) £412 (Schedule E)—an aggregate of £1,912. If for the year to April 5, 1941, the practice earnings to which "N. W." is entitled fall by £383 or more, then his actual aggregate earned income will be less than the amount assessed by more than one-fifth, and in that case he will be entitled to have the assessments reduced to the "actual" amounts. There will be no hardship, but, on the other hand, a probable ultimate gain when he resumes his practice work and benefits under the previous year's rule of assessment. But that depends on the actual figures, and the reduction may not be enough to enable the claim for the "actual" year's basis to be made, and it is suggested that in such circumstances it should be permissible to treat the E.M.S. salary as part of the practice income. Unfortunately that is not legally correct, and the Inland Revenue Department are very unlikely to concede the point. It will be appreciated that the one-fifth test is of general application and has statutory force, and any departure from the correct legal position would create difficulties—for example, as regards R.A.M.C. pay.

Assessment of Property

E. F. W. has been assessed in respect of his house on £122 for War Damage contribution and income tax, Schedule A. The property is rated at £117.

*** Normally the gross value of property is the same for taxation as for rates, but a difference arises in the net value owing to the fact that the deduction made for upkeep is not always calculated at the same percentage of the gross value. In any case the taxation authorities are not bound by the rating valuation.

LETTERS, NOTES, ETC.

Corneal Ulcers cured by Sulphapyridine

Dr. SYDNEY TIBBLES (London) writes: In May last I was asked to see a woman aged 60 who was suffering from recurrent corneal ulcers of her right eye, which was intensely inflamed as she had in addition keratitis and an iridocyclitis. As we could discover no reason for these latter complications the ulcers were twice cauterized with carbolic and she was put on atropine drops, a perchloride lotion, and a mercury and iodide mixture internally. As the ulcers recurred the lids were painted with silver nitrate, but no progress was made in spite of all treatment, so she was put on sulphapyridine, one tablet thrice daily, and immediately responded. Ten days afterwards the vision was 6/12 with that eye, which was perfectly normal except for a slight scarring due to the ulcers.

Attending a Colleague

Mr. W. MCADAM ECCLES, M.S., F.R.C.S., writes: In reference to the correspondence relating to the above it may be stated that there is in existence already, and has been for many years, all the machinery necessary for carrying out "payment to specialists" for treatment of professional colleagues. It exists in the British Provident Association, and all interested—and it should be the whole profession—may write to the Manager, B.P.A., 30, Lancaster Gate, London, W.2, for full particulars.

Accommodation for Doctor's Family

Dr. "A. B." whose family have been evacuated from London, offers accommodation free of charge to a family, preferably medical, who would attend to his own domestic needs. Letters addressed to Dr. "A. B.," c/o the Editor, will be forwarded.

Shortage of Glucose Preparations

Dr. J. J. BROWN (Hackney, E.9) writes: The difficulty and in some areas the apparent impossibility of obtaining sufficient quantities of glucose preparations, especially in pleasant liquid form, is presenting medical practitioners with an awkward problem. Is the shortage due to transport difficulties, or is it because glucose is rationed to the makers of these very useful products? In either case a serious effort should be made to ease the situation. Glucose finds numerous applications, and in many circumstances there is no satisfactory substitute.

First Aid for Horn-rimmed Spectacles

Dr. K. E. D. DAUNCEY (Yeovil) writes: At the present time it is difficult to get repairs to horn-rimmed spectacles carried out without considerable delay. There is an effective and easy method of temporary repair which can be made by anyone at the cost of a farthing by using half a length of ordinary cycle valve rubber. The break usually occurs near the centre of the bridge, but the same method can be used for the sides. The edges of the break should be moistened and then the rubber pushed on, one end on one side and then the other end on the other. Care must be taken that when finished the fractured ends are in apposition. The splinting is not rigid, but is hardly noticeable and is comfortable in wear. The rubber perishes after about three weeks, but it can easily be replaced should the new spectacles be delayed longer than that time.